EV-S800/S850PS

SERVICE MANUAL

AEP Model
(EV-S800)

West Germany Model
(EV-S850PS)



SPECIFICATIONS

System

Video recording system

Rotary two-head helical scanning

Helical scanning FM system

Audio recording system

Normal recording

Standard: Rotary head FM system

(monaural)

PCM: PCM system (2 channels)

Digital multi audio recording

PCM system (2 channels, 6 tracks) EV-S800: CCIR system B,G and H,

Colour system EV-S800: C PAL colour

EV-S850PS: DDR SECAM to PAL

colour, convertible

Usable cassettes

Tape speed

8 mm video format casette

SP: Approx. 20.051 mm/sec.

LP: Approx. 10.058 mm/sec.

Recording or playback time

SP: 1 hr. 30 min.

LP: 3 hr.

(P5-90)

Fast forward time

Approx. 3 min.

PCM, Digital multi audio system

Sampling frequency

31.25 kHz 20 Hz-15 kHz

Audio frequency Dynamic range

More than 90 dB

Wow and flutter Less than 0.005 % RMS

Tuner section

Channel coverage

VHF E2-S20

UHF E21-E69

Programming system

30 programme-memories

RF output signal

UHF channels E30 to E39 (variable),

75 ohms, unbalanced

Aerial input

75-ohm, asymmetrical serial socket

-Continued on next page-







Inputs and outputs

Video input

VIDEO IN

phono jack

1 Vp-p, 75 ohms, unbalanced, sync

negative

Video outputs

EURO-AV

21-pin (pin 19)

1 Vp-p, 75 ohms, unbalanced, sync

negative

VIDEO OUT

Phono jack 1 Vp-p, 75 ohms, unbalanced, sync

negative

Audio inputs

AUDIO IN

Phono jack

47 kilohms, -10 dBs (0 dBs =

0.775 V rms)

Audio outputs

EURO-AV

21-pin (pins 1 and 3)

Output impedance less than 1 kilohms -6 dBs with 10 kilohms

load, unbalanced

AUDIO OUT

Phono jack

Output impedance less than 1 kilohms -10 dBs with 47 kilohms

load, unbalanced

CONTROL L CONTROL S IN CONTROL S OUT 5-pin DIN Minijack Minijack

Microphones inputs

Minijack -60 dBs, for low-

impedance microphone

HEADPHONES jack

Stereo phone jack -20 dBs, 8 ohms

Timer

Clock Time indication Timer setting

Crystal lock 24-hour cycle

Only for recording

6 events (3 weeks max. adjustable for any day or for all 7 days of the

week)

General

Power requirements Power consumption 220 V AC, 50/60 Hz EV-S800: 30 W

EV-S850PS: 34 W

Operating temperature 5 °C to 40 °C (41 °F to 104 °F) Storage temperature

-20 °C to +60 °C (-4 °F to +140

Dimensions

Weight

Approx. 430 × 89 × 328 mm

incl. projecting parts and controls Approx. 7.3 kg (EV-S850PS) 7.0kg

(EV-S800)

Accessories supplied

75-ohm coaxial cable for TV

connection (1)

Connecting cord RK-74H (1)

Screwdriver (1)

Remote Commander RMT-425 (1) Sony battery SUM-3 (NS) (3)

Feet (5)

Design and specifications subject to change without

notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

- 1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- 2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- 3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- 4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- 5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!

COMPONENTS IDENTIFIED BY SHADING AND MARK NO THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PRO-CEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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SECTION 1 GENERAL

1-1. PRECAUTIONS

On safety

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the mains outlet if it is not to be used for an extended period of time. To disconnect the lead, pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (ac power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object (over 13 kg or 28 lbs 10 oz) on the unit.
 - Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.

Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

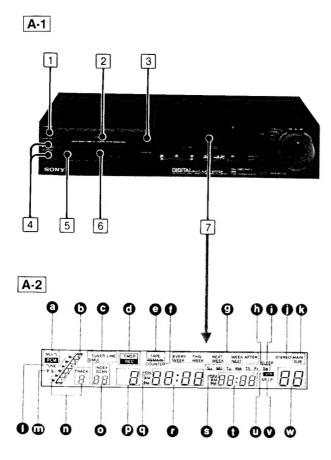
Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

If you have any questions about this unit, contact your Sony dealer.

1-2. LOCATION AND FUNCTION OF CONTROLS



A-1

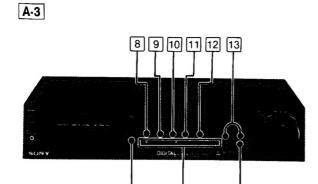
- 1 ON/STANDBY switch and lamp
- 2 Cassette holder (Page 17)
- 3 OPEN/CLOSE button (Page 17)
 Press to slide out the cassette holder. Press again to slide it in.
- 4 HEADPHONES jack (stereo mini type) and PHONE LEVEL control

Connect stereo headphones (with stereo mini jack) here. Adjust the volume with the PHONE LEVEL control.

- 5 REMOTE SENSOR
- 6 PEAK PROGRAM METER (Page 26)
 Shows the peak input levels of the right and left channels during recording and recorded levels during playback.
- 7 Display window

A-2

- MULTI PCM or PCM indicator
- O Digital multi audio tracks indicator
- Input signal indicator
- **1** TIMER REC indicator
- TAPE REMAIN indicator
- COUNTER indicator
- Week indicator
- Day of the week indicator
- SLEEP indicator
- STEREO indicator
- Bilingual indicator
- TUNE (tuning) indicator
- P (Parallel) or S (Series) digital multi audio timer recording indicator
- O Digital multi audio track number and indicator
- INDEX indicators
- ① Timer programme position
- Turn-on time setting indicator
- Turn-on time of a timer recording/Tape counter/Tape remain indicator
- Turn-off time setting indicator
- Turn-off time of a timer recording/clock display
- VTR indicator
- Recording speed indicator
- O Programme number



15

14

A-3

8 COUNTER/REMAIN button (Page 24)

Each time the button is pressed, the COUNTER and the TAPE REMAIN indicators are displayed alternately.

9 COUNTER RESET button (Page 24)

Press to reset the tape counter to "0000".

10 GO TO ZERO button (Page 25)

In stop mode, press to advance or rewind the tape approximately to the counter "0000".

11 INDEX button (Page 30)

Used for the index scan or index search operation.

12 ANT TV/VTR button

Press to view the programme selected on the recorder. The VTR indicator appears in the display window (VTR mode).

To view a TV programme while recording another, press this button again.

The VTR indicator disappears. (TV mode)

13 PROGRAM/TRACK/INDEX buttons

Press to: -change the programme

- change the track for digital multi audio recording/playback
- -change the index number

14 SYNCHRO EDIT lamp (Pages 40-43)

Lights up when SYNCHRO EDIT inside the front panel is pressed.

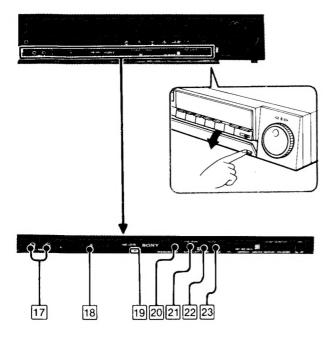
15 Tape transport buttons and indicators

- REW (rewind)
- ► PLAY (playback)
- ▶ FF (fast forward)
- STOP (stop)
- II PAUSE (pause)/► STILL (still)

x2 (double speed playback)

16 REC (recording) switch

Slide to the right to start recording.



Inside the front panel

A-4

17 MIC (microphone) jacks (L, R) (mini type) (Page 44)
To record from these jacks, display LINE by pressing INPUT SELECT.

Connection of the microphone and the track to be recorded

Track Micro-	PCM	PCM track			
phone jack	L channel	R channel	track		
L	Microphone sound	Microphone sound	Microphone sound		
R		Microphone sound	Microphone sound		
1) Micro- phone L and R sound of the L jack		2) Micro- phone sound of the R jack	1) and 2)		

18 REC LEVEL controls (Page 26) Slide to adjust the level of the PCM audio recording.

19 SYNCHRO EDIT button (Page 38)

Press to start the playback on this unit and the recording of the connected VTR (or vice versa; recording on this unit and playback on the other VTR). When pressed, SYNCHRO EDIT lamp lights up.

20 EDIT button and lamp

Normally keep the lamp off.

When editing a tape onto another recorder (or vice versa), press the button so that the lamp lights up.

21 PCM MODE selector (Page 25)

Select the method of PCM audio recording.

Set to: **NORMAL** for normal recording on the PCM track.

DIGITAL MULTI P (parallel) for timer recording from the beginning of each track.

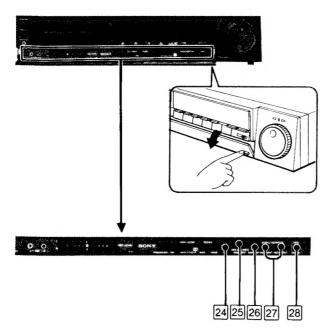
DIGITAL MULTI S (series) for continuous timer recording in one of six tracks.

22 INDEX MARK button (Page 29)

Press to mark an index signal at the desired point during recording or playback.

23 INDEX ERASE button (Page 32)

To erase a pre-recorded index signal, locate the index signal and press this button.



A-5

PFS (Picture Fine Select) button and lamp
Normally, keep the lamp off.
If the playback picture of a tape recorded on other VTRs
(which do not use the four-video heads system) is
distorted or has streaks, press so that the lamp lights up.

25 SHARPNESS control

Use to adjust the sharpness of the picture if necessary. Normally set the control at the center detent position.

26 AUDIO DUB button (Page 44)

Press to start recording on the PCM track of any recorded video tape.

Set PCM MODE [21] to NORM.

27 AUDIO MONITOR selectors (Page 21)

During playback or recording, set to the appropriate position to monitor the desired sound.

MAIN/SUB/M. S selector

When monitoring bilingual programmes or playing back a bilingual tape, press to display:

MAIN: to listen to the main language SUB: to listen to the sub language

MAIN. SUB: to listen to the main language from the left speaker and the sub language from the right speaker.

A stereo tape with a pilot signal (the STEREO indicator appears) is played back in the stereo mode regardless of the position of this selector.

PCM/MIX/STD selector

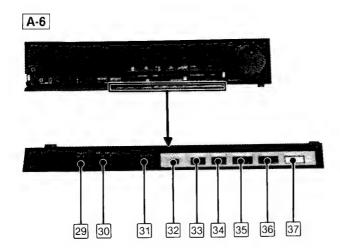
PCM: to play back the sound on the PCM track.
When nothing is recorded on the PCM track,
the sound recorded on the standard track is
played back regardless of the position of this
selector.

MIX: to play back the sound on the PCM and standard tracks simultaneously.

STD: to play back the sound on the standard track.

28 VPS (Video Programme System) switch (EV-S850PS only)

Set to ON to activate the VPS in the timer recording.



On the front panel

A-6

29 INPUT SELECT button

Press to display the desired input signal indication in the window.

TUNER: to record TV programmes

SIMUL: to record TV programmes and signals from the AUDIO IN jacks.

LINE: to record audio/video signals from the AUDIO IN/ VIDEO IN jacks on the rear panel or to dub only audio signals from AUDIO IN or MIC jacks.

30 REC MODE selector

This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.

The playback speed is automatically set regardless of

The playback speed is automatically set regardless of the setting of this selector.

31 SLEEP button (Page 37)

Press to preset the turn-off time of this VTR. Playback or recording can be stopped with this timer.

32 CLOCK SET button (Page 16) Press as the first step to set the internal clock.

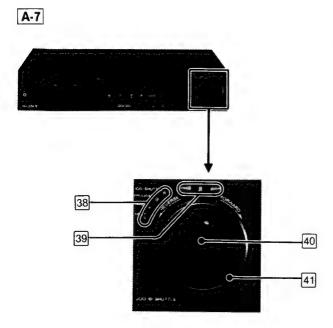
33 CHECK button (Page 34) Press to check the contents of the timer presettings.

34 CLEAR button (Page 34) Press to cancel a timer setting.

TIMER SET button (Pages 33,34) Press to start the setting or resetting of timer programmes.

36 **NEXT button** (Page 33) Press to advance to the next item to be set when setting the timer or the clock.

37 TIMER REC ON/OFF button (Page 33) Press after programming VTR for timer recordings so that the timer activates. To deactivate the timer, press again.



38 JOG dial function indicators (Page 23)

Light up to indicate for what purpose the JOG dial is being turned.

JOG/SHUTTLE: when the tape is being played back at the desired speed.

PROGRAM: When the TV programme or digital multi audio track is being selected.

TIMER: When the timer or clock is being set. **INDEX:** When the index operation is being made.

39 Playback indicators (Page 23)

Indicate the forward or reverse movement or the pause mode of the tape during playback.

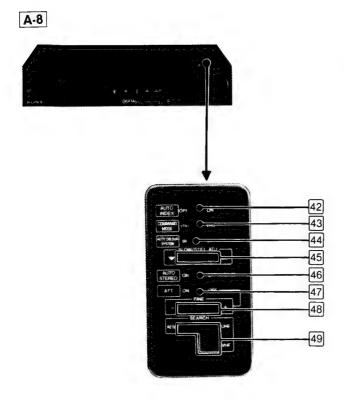
40 JOG dial (Page 23)

Turn to select programmes.

When this is turned during the playback pause mode, the picture will be played back at a speed according to the speed you are turning the dial. (From frame-by-frame to normal speed.) This dial is also used for setting the clock, presetting timer recordings, selecting any of the 6 digital multi audio tracks and for setting INDEX numbers.

41 SHUTTLE ring (Page 23)

When this ring is turned and held during the playback pause mode, you can play back the tape at various speeds: 1/5 normal speed, normal speed or double speed. The more it is turned, the faster the playback will be and when fully turned, the unit enters the "Picture search" mode in the right or in the reverse direction.



Upper compartment

42 AUTO INDEX switch (Page 29)

Normally set to OFF. To activate automatic marking of index signals during digital multi audio recording, set to ON.

43 COMMAND MODE selector (Pages 39,356)

To remotely control this unit with the supplied Remote Commander, set this selector to the same position as that on the Remote Commander.

When editing tapes, switch to the appropriate position accroding to the connection you have made.

AUTO COLOUR SYSTEM switch (EV-S850PS only)

Normally set to AUTO. According to the TV programme, colour system will be switched automatically to PAL or DDR SECAM.

If the signal is too weak or the picture is distorted, set the switch to PAL. DDR SECAM programmes will be displayed in black and white.

45 SLOW/STILL ADJ (adjust) buttons (Page 22)
Adjust the still or slow-motion picture if necessary.

46 AUTO STEREO switch

Normally set to ON. During a stereo broadcast, the mode is automatically set to stereo. If there is too much interference, set the switch to OFF in which case all the TV programmes will be received in monaural.

47 AFT switch

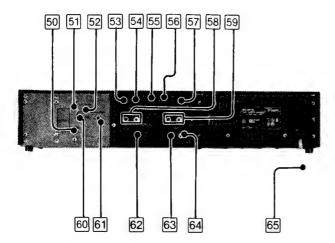
Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture.

48 FINE buttons (Page 16)

When the AFT switch is set to OFF, press to fine tune the station.

49 SEARCH buttons (Page 15)

Press RESET to clear the programmed station. Press UHF or VHF to tune in a station of higher frequency.



Rear

50 AERIAL OUT socket

Connect the aerial input of the TV receiver.

51 AERIAL IN socket

Connect the aerial cable.

- 52 TEST SIGNAL switch (Page 15) Set to ON to obtain a test pattern.
- 53 CONTROL S IN jack (mini type) (Page 42)
 Connect to the CONTROL S output jack of other Sony products.
- 54 CONTROL S OUT jack (mini type)

 Connect to the CONTROL S input jack of other Sony products.
- 55 DIGITAL MULTI PLAY selector

Normally set to AUTO.

The playback mode will be automatically set to the digital multi audio mode. If no sound is heard when playing back a tape recorded on another VTR, set to MULTI.

56 MASTER/SLAVE selector (Page 39)

When editing a tape using the CONTROL L connector, set to either position:

MASTER: to control other equipment connected by the CONTROL L connector.

SLAVE: to be controlled by other equipment (such as RM-E100V editing controller) having control L connector.

- [57] CONTROL L (5-pin) connector (Pages 40,41)

 Connect to the CONTROL L or REMOTE connector of other Sony products.
- 58 AUDIO IN (L,R) (input) jacks (phono type)
- 59 AUDIO OUT (L,R) (output) jacks (phono type)
- 60 LOCAL/DX switch

Normally set to DX. If the TV signal is very strong, set the switch to LOCAL.

61 RF CHANNEL screw (Page 15)

If there is interference on the factory-preset channel for RF output and the output signal from this unitcannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

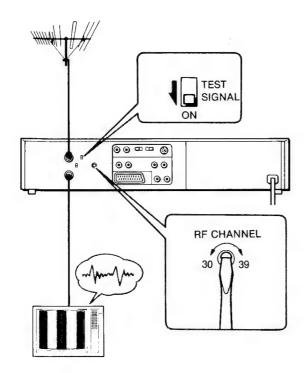
62 EURO-AV connector (21-pin)

Connect to the 21-pin connector of a VTR or a V/monitor, or to the audio/video input and/or output of these units with an appropriate connecting cable.

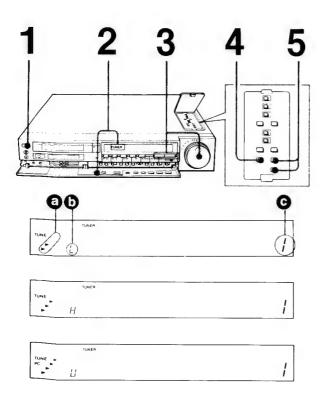
- 63 VIDEO IN (input) jack (phono type)
- 64 VIDEO OUT (output) jack (phono type)
- 65 AC power cord (mains lead)
 Connect to an ac (mains) outlet.

1-3. ADJUSTMENTS

B-1



B-2



ADJUSTING THE TV B-1

One of the television programme positions must be adjusted to receive the signal from the recorder.

Note that the adjustment is not necessary, however, when the VTR is connected to the AUDIO/VIDEO inputs on the TV/monitor.

- 1 After making the connections, press ON/STANDBY.
- 2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
- 3 Set TEST SIGNAL at the rear of the recorder to ON. The test signal is transmitted on a channel between UHF channels 30 and 39.
- 4 Turn on the TV and select a programme position which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.

If the test picture is free of disturbance, the TV adjustment is complete. Set TEST SIGNAL to OFF.

If the test picture is not free of disturbance,

- 1 Reset TEST SIGNAL to OFF.
- 2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound heard.
- 3 Set TEST SIGNAL to ON again.
- 4 Slowly turn RF CHANNEL on the rear of the recorder with the supplied screwdriver, until you see an undistorted test pattern on the TV screen.
- 5 Now the TV adjustment is complete. Reset TEST SIGNAL to OFF.

If you are not sure how to adjust your TV refer to the TV's instruction manual or consult your dealer.

PROGRAMMING TV STATIONS B-2

Up to 30 programmes receivable in your area can be preset on this unit.

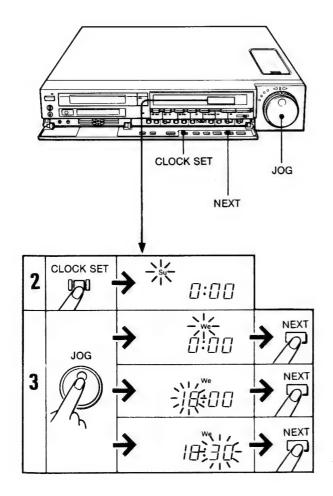
Once preset, you can select TV programmes by turning the JOG dial or pressing the \pm /- buttons.

- 1 Turn on the unit.
- 2 Display "TUNER" by pressing INPUT SELECT.
- 3 Turn the JOG dial or press PROGRAM/TRACK/INDEX + or − to select the programme position (0 to 30) on which the desired TV programme should be tuned in. **⊙**
- 4 Press RESET in the upper compartment to clear the factory preset programmes.
- 5 Press UHF or VHF to search stations. The tuning indicators in the window show the approximate location of the current channel. (a): Band indicator)

Each time a station is received, the search stops. Press UHF or VHF again until the desired station is tuned in.

Repeat steps 3 to 5 for all the desired stations.

B-3



To cancel an unused programme

- Select the programme to be cancelled with + or -PROGRAM/TRACK/INDEX.
- 2 Press RESET.

The cancelled programme will be skipped when + or - PROGRAM/TRACK/INDEX is pressed.

When the corresponding programme number button on the Commander is pressed, the sound of the cancelled programme will be cut out and no picture will be displayed.

To fine tune a station

If the picture of a particular station is not acceptable, set AFT in the upper compartment to OFF and keep + or - FINE pressed until the picture becomes clear. To view this particular station, set AFT to OFF.

SETTING THE CLOCK B-3

- 1 When you connect the unit to a mains outlet, the clock shows "Su 0:00".
- 2 Press CLOCK SET.

This turns the unit on.

- 3 Set day, hour and minute in sequence. First adjust the blinking item by turning the JOG dial, and then press NEXT.
 - (ex. To set for Wednesday evening at 6:30)
 For accurate setting, after adjusting the minute digit, press NEXT at the same time as an announced time signal.

The clock will now start and the dots of the colon will alternately blink every 30 seconds.

4 Press ON/STANDBY to turn off the unit.

JOG dial

Turn clockwise to advance the digits, and anticlockwise to reverse them.

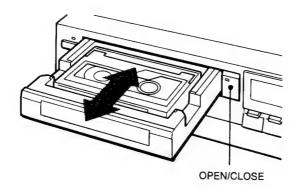
To readjust the previously set item during clock setting Press CLOCK SET again for a few seconds. Press NEXT until the item to be changed blinks and reset it. The n, terminate the setting by pressing NEXT enough times until the dots of the colon blinks.

If a power interruption occurs,

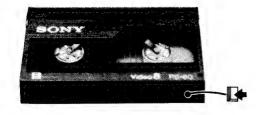
"Su 0:00" will lights up in the window.

1-4. ABOUT CASSETTES

C-1



C-2



INSERTION C-1

- Press OPEN/CLOSE to open the cassette holder.
 Power will be supplied automatically with this step.
- 2 Place the cassette with the window side up.
- 3 Press OPEN/CLOSE to close the cassette holder.

EJECTION

- 1 Press OPEN/CLOSE.
- 2 Remove the cassette and press OPEN/CLOSE.

Notes

- Always insert a cassette in the correct direction.
- The lamp inside the holder blinks while the tape is being loaded.
 - Wait until the blinking stops before proceeding.
- The cassette holder can be closed by pressing itself manually.
 - Never press it forcibly or the cassete may be ejected.
- Once the cassette is placed, you can close the holder by pressing ▶, ◄◄, ▶▶ or ♠ (REC).

TO PREVENT ACCIDENTAL ERASURE [C-2]

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To protect a recording, slide the tab out to cover the opening.

When the tab is out, a recording cannot be made. To rerecord on a cassette, slide the tab in.

RECORDING TIME, PLAYBACK TIME

The LP mode is twice as long as the SP mode. For better picture and sound, recording in the SP mode is recommended.

During playback, the mode in which the tape was recorded is selected automatically.

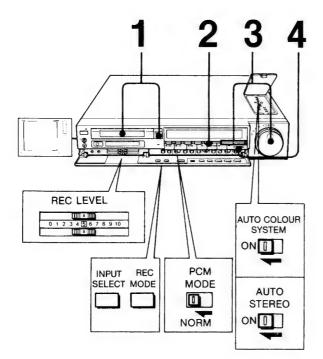
Cassette used	SP mode	LP mode
P5-30	30 min.	1 hr.
P5-60	60 min.	2 hr.
P5-90	90 min.	3 hr.

Note

Never insert anything in the small holes on the rear of the cassette.

1-5. TV PROGRAMME RECORDING

D-1



Make sure that you have finished all the connections and adjustments on pages 15 through 17.

OPERATION D-1

Before recording

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- · Check the position of the selectors:

Press	to display
INPUT SELECT	TUNER
REC MODE	SP or LP
Set	to
PCM MODE	NORM
AUTO STEREO	ON
AUTO COLOUR SYSTEM (EV-S850PS only)	ON

- · Set REC LEVEL to "5".
- 1 Insert a cassette.
- Press ANT TV/VTR so that the "VTR" indicator is displayed.
- 3 Select the programme to be recorded with JOG or +/-PROGRAM/TRACK/INDEX.
- 4 Slide REC to the right.

To stop recording

Press STOP.

To stop recording for a moment

Press II/A PAUSE/STILL. The TV programme can still be seen on the TV, but the picture is not recorded.

To resume recording, press II/A PAUSE/STILL again.

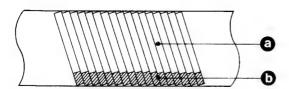
To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop. Smooth recordings can be made by using II/A PAUSE/STILL. See page 19.

When the recording is made to the end of the tape, the tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains

on.

- * If your TV/monitor is equipped with audio/video inputs ora multiconnector, select the correct input on your TV/monitor.
 - If your TV/monitor is equipped with SCART (CENELEC) o PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.

D-2



During recording...

If stereo programmes are received,

"STEREO" indicator will be displayed in the window.

If bilingual programmes are received,

select the sound to be monitored with AUDIO MONITOR MAIN/SUB/MAIN, SUB.

Recording is made as follows: D-2

Standard track

Video/audio signals of the TV programme and the main sound of a bilingual programme are recorded

Recorded sounds are monaural.

O PCM track

Audio signals from the connected equipment or from TV are recorded in digital PCM sound. Sound can either be in monaural (when sounds for left and right channel are the same) or in stereo (each sound for left and right channels).

FOR SMOOTH RECORDING

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

To start recording from a particular point

You can decide the starting point for recording while watching the picture.

- 1 Play back the tape and locate the point for recording while watching the picture.
- 2 Press / PAUSE/STILL to stop the tape where you wish to start recording.
- 3 Slide REC to the right. The recorder will enter the recording pause mode.
- 4 Press II/► PAUSE/STILL at the desired point to release the pause mode. Recording starts.

Note

Be sure not to change the position of REC MODE (SP/LP) between different scenes. Particularly, if you change the switch from LP to SP, a short blank will be recorded.

Frame-by-frame recording

If • REC is slid to the right while the unit is in the recording pause mode, a short recording of approx. 7 seconds will be made, and then the unit enters the recording pause mode again.

Repeat this operation as many times as you like.

TO VIEW ONE TV PROGRMME WHILE RECORDING ANOTHER

- Press TV/VTR so that the "VTR" indicator disappers from the window.
- 2 Select the programme you want to view on the TV.

If your TV is equipped with a TV/VTR input selector, simply set the selector to "TV" and select the programme on the TV.

TO RECORD A TV PROGRAMME WHILE RECORDING AN FM BROADCAST AT THE SAME TIME — FM simulcast recording D-3

Sometimes a TV station and an FM radio station will broadcast a programme simultaneously so that you can record a TV programme in high-fidelity stereo. The TV programme (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

For details on connection.

Operation

Operate as described in "TV programme recording" on page 18 except the following points:

- 1 Press INPUT SELECT so that the "SIMUL" indication appears in the window.
- Select the programme both on the VTR and the FM tuner.

Recording will be made as follows: D-4

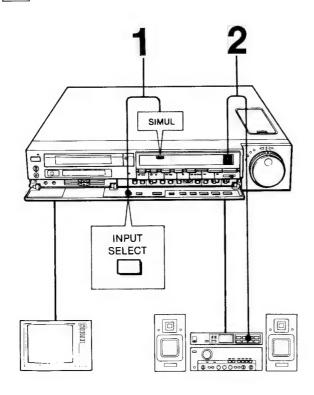
Standard track

Video and audio signals of the TV programme will be recorded here.

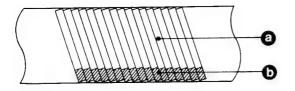
O PCM track

FM broadcast programme from the FM tuner will be recorded in stereo.



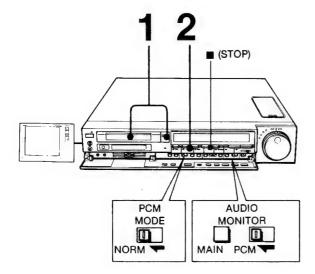






1-6. PLAYBACK

E-1



E-1

Before playing back

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- · Check the position of the selectors:

Set	to			
PCM MODE	NORM			
AUDIO MONITOR				
Press MAIN/SUB/M.S.	to display MAIN			
Set PCM/MIX/STD	to PCM			

- Set as above, you can listen to the MAIN language of the bilingual programme and the stereo sound recorded on the PCM track of the tape.
- When nothing is recoded on the PCM track, you will automatically hear the sound recorded on the STD track.

To monitor other kinds of sound, change these settings. See "To select the monitor sound" below.

Note

If the picture is not displayed and/or the sound is not heard or heard only intermittently when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set AUDIO MONITOR on this unit to STD. (Although AUDIO MONITOR is set to STD, the "PCM" indicator may occasionally light up.)

OPERATION

- 1 Insert a cassette.
- 2 Press ► PLAY.

To stop playing back

Press STOP.

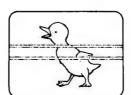
To select the monitor sound

Kind of the tape	Track to	Position of	the selector	
(conditions of recorded signals)	be played back	MAIN/ SUB/M.S.	PCM/MIX/ STD	
Stereo	PCM	_	PCM	
FM simulcast (Page 20)	РСМ	_	PCM	
Bilingual	PCM	MAIN, SUB or M.S	РСМ	
Audio dubbed (Page 44)	PCM and STD	_	MIX	

[&]quot;-" means that the selector can be set to any of its position.

- * If your TV/monitor is equipped audio/video inputs or a multiconnector, select the correct input on your TV/monitor.
 - If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.

E-2



To advance or rewind the tape rapidly

Press ►► FF or ◀◀ REW respectively in the stop mode. To stop the tape, press ■ STOP.

Auto play — To play back a tape from the beginning of the tape after rewinding

Press ➤ PLAY keeping ◀◀ REW depressed, or press AUTO PB on the Remote Commander.

After the tape is completely rewound, it will automatically be played back.

VARIOUS PLAYBACK MODES

Use the buttons on the recorder or on the Remote Commander.

Picture search — viewing the picture at a fast speed to find a particular scene

Keep pressing ▶▶ FF or ◀◀ REW during playback. When you release the button, the normal playback will be resumed.

Streaks appear and the sound is muted during "Picture search" and "Still picture". E-2

Still picture (playback pause)

Press II/ PAUSE/STILL during playback. The sound is muted.

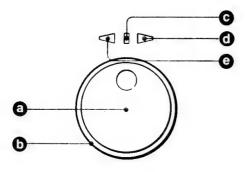
To resume normal playback, press **II**/► PAUSE/STILL again or press ► PLAY.

To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and playback will be resumed.

To obtain better playback picture in variable playback modes

- If the still picture seems to shake, press + or - SLOW/STILL ADJ in the upper compartment until the picture stabilizes.
- If streaks or noise bands appear in still, frame-by-frame, normal (x1), double (x2), 1/10 or 1/5 speed picture, set to 1/10 or 1/5 speed picture mode and press + or -SLOW/STILL ADJ.

E-3



E-4



E-5



VARIOUS SPEED PLAYBACK USING THE JOG DIAL AND SHUTTLE RING

E-3

- JOG dial
- **6** SHUTTLE ring
- G Lights when JOG and SHUTTLE are operable or in use.
- Indicates the forward playback.
- Indicates the reverse playback.

Using the JOG dial E-4

- 1 Play back a tape and stop the playback by pressing
 PAUSE/STILL.
- 2 Turn the JOG dial.

The tape will be played back at the speed at which you are turning the dial (1/10, 1/5 or normal speed). Turn it clockwise for forward playback, or anticlockwise for reverse playback.

3 When you stop turning the JOG dial, the still picture will be displayed.

Using the SHUTTLE ring E-5

- 2 Turn the SHUTTLE ring and hold it at the position where the desired playback speed is obtained. You can select 1/5, normal, double or continuous picture search speed. Turn it clockwise for forward playback, or anticlockwise

for reverse playback.

3 When the SHUTTLE ring is released, the still picture will be displayed.

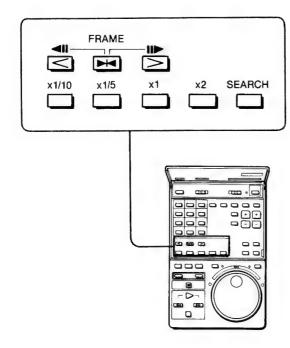
To use the JOG dial and SHUTTLE ring on the Remote Commander

Before operating JOG or SHUTTLE, press the JOG SHUTTLE function button on the Commander so that the associated indicator lights. The VTR will enter playback pause mode.

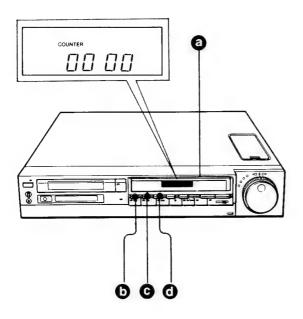
If JOG and SHUTTLE on the Commander are not used for more than one minute, their function will be released automatically in order to prevent undue battery wear. To use JOG and SHUTTLE again, press the JOG SHUTTLE function button once more:

- JOG and SHUTTLE on the Commander will function in still picture and various speed playback modes.
- Once you have used JOG and SHUTTLE on the Commander for various speed playback, then, JOG and SHUTTLE on the unit will not function.

E-6



F-1



VARIOUS PLAYBACK MODES USING THE REMOTE COMMANDER E-6

Frame-by-frame picture

Press FRAME ▮▮► (forward) or ◀▮▮ (reverse) in still picture mode.

Press ➤ PLAY to resume normal playback.

Variable speed playback

Press the desired speed button during playback or in still picture mode. The sound is muted (except in x1 and x2 forward picture).

► still picture

x1/10: slow motion picture at 1/10 normal speed x1/5: slow motion picture at 1/5 normal speed

x1: normal speed picturex2: double speed picture

SEARCH: continuous picture search

To reverse the direction of the variable speed playback, press ◀▮. To resume forward playback, press ▮▮►.

To change the playback speed, simply press the desired speed button.

To resume normal playback, press ► PLAY.

USE OF THE TAPE COUNTER

The tape counter indicates the relative position of programmes on the tape.

F-1

- a Display window
- O COUNTER/REMAIN
- G COUNTER RESET
- GO TO ZERO

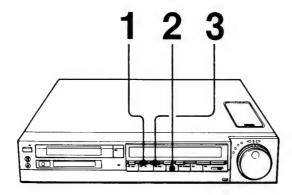
To index the tape contents

Before starting recording or playback, press CCUNTER RESET to set the counter to 0000. By noting the counter reading at the desired point, you can easily fine that point later by referring to the counter.

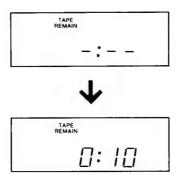
Note to list the programmes and their counter eadings.

- The counter reading is automatically reset tozero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the assette is kept inserted in the cassette holder.
- The counter reading will not exactly correspend to the position of the tape after the tape has been topped or run repeatedly in fast-forward or rewind mods.

F-2



F-3



GO TO ZERO — To stop the tape at a particular point F-2

- 1 During recording or playback, press COUNTER RESET at the point you want to locate later.
- 2 When recording or playback is finished, stop the tape.
- 3 Press GO TO ZERO. The tape will be rewound or advanced close to the counter 0000 point.

GO TO ZERO play — To start playback automatically from the counter zero point

Press ► PLAY after pressing GO TO ZERO. The indicator on ► PLAY will blink.

To check the remaining recording or playback time F-3 During recording or playback, press COUNTER/REMAIN.

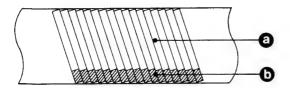
The displayed remaining time will decrease as the recording or playback goes on.

To display the tape counter, press COUNTER/REMAIN

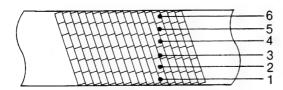
- The remaining time appears only after the "-:--" indication has been displayed for several seconds.
- If you want to display the remaining time during x2 (in the right direction) and x1, x2 (in the reverse direction), first display the remaining time in the normal playback mode. Then, set in the above speed and press COUNTER/REMAIN.
- During the frame-by-frame or the slow-speed playback, the display indicates the remaining time when the playback started.
- · On the accuracy of the remaining time counter:
 - —For commercially available recorded tapes, the counter will not indicate the exactly same time as the recorded time labeled on the tape.
 - —For damaged tapes and nonstandard tapes, the accuracy will be degraded.
 - —At the beginning of a tape, especially when the tape has just been rewound, the remaining time will be calculated greater than the actual time (by several minutes max.).

1-7. DIGITAL MULTI AUDIO RECORDING AND PLAYBACK

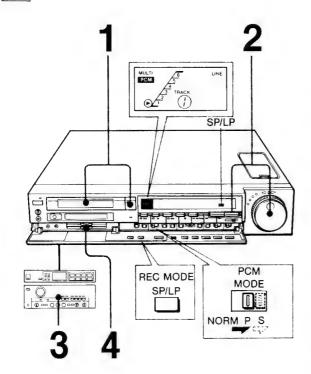
G-1



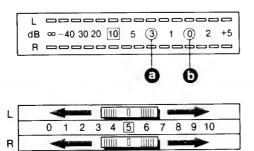
G-2



G-3



G-4



Normally, both the video and audio signals can be recorded on your video tape.

G-1

O Video + audio

Audio

However, you can record up to 6 tracks of only the audio signals in the digital mode, using the full width of the tape. This is called digital multi audio recording, providing a high-fidelity stereo sound. G-2

To connect the VTR to your audio system.

RECORDING G-3

Before recording

Check the position of the selectors:

Set	to			
REC MODE	SP or LP			
PCM MODE	P or S*			

*Set to either of two positions. They activate in the same way.

Operation

- 1 Insert a cassette.
- 2 Turn JOG or press +/- PROGRAM/TRACK/INDEX to select the digital multi audio track on which recording should be made.
 - —Adjust "▶" (red indication) to the desired track.
- 3 Turn on the power on the audio equipment and set to the playback mode.
- 4 Adjust REC LEVEL. Verify the adjustment with the peak level meter of the recorder.

Recording level adjustment G-4

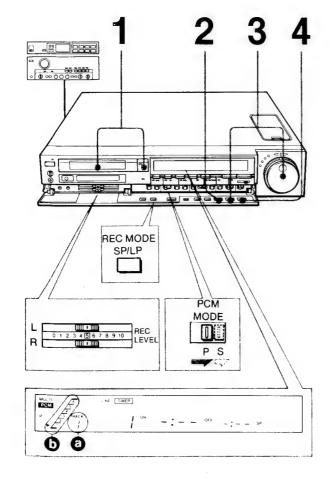
Referring the peak level meter, manually adjust the recording level with REC LEVEL.

Select the best recording level for each source as to lows: When recording sources with many high frequency signals (ex: trampets etc) set so that the peak programme meters deflect -3 dBs. ②

When recording sources with midium or lower frequency signals (ex: vocals) set so that the peak programme meters deflect 0 dB. ①

During playback, you can read the recorded level on the peak level meter.

G-5



TIMER RECORDING

If you connect any audio tuner with timer presetting functions, you can record up to 6 radio programmes in the digital PCM sound.

6 programmes can be recorded either on 6 separate audio tracks (for parallel recording) or they can be recorded successively on one track (for series recording).

Before presetting G-5

- · Turn on the audio tuner.
- · Check if the clock is set correctly. (Page 16.)
- · Check the position of selectors:

Press	to display			
REC MODE	SP or LP			
Set	to			
PCM MODE	P (parallel) or S (series)			
REC LEVEL	"5"			

Presetting

- 1 Insert a cassette.
- 2 Press TIMER SET.
- 3 Set the following items by turning JOG and pressing NEXT.
 - audio track (Set the track number displayed in numeral.)
 - day of the week
 - recording starting time
 - ending time

(Refer to "Timer-activated recording" on page 33.)

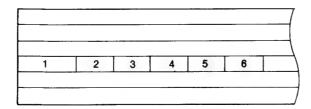
4 Press TIMER REC.

- After having set the timer, do not change the position of PCM MODE because the timer recording will not be made correctly.
- Timer presettings of TV programme recordings and digital multi audio recordings can be made on one tape. However, such presettings are not recommended because you must verify the position of the PCM MODE switch before each timer recordings.
- To preset or check the digital multi audio track while you are using this unit
 - When the unit is in digital multi audio playback/ recording
 - The track for presetting. Set with JOG.
 - The track on which playback or recording is being made. Select with PROGRAM/TRACK/INDEX.
 - 2) When the unit is in normal playback/recording
 - The track for presetting. Set with JOG.

G-6

1	
5	
4	
2	
6	
3	

G-7



Parallel and series recordings

Parallel recording — stereo recording of one programme on each track

- After a programme is recorded on one track, then, another recording will begin on another track from the beginning of the tape.
- You can select the track in any order for any programme. G-6

Series recording — Stereo recording in series on only a single track

 After one programme is recorded, another one is recorded successively on the same track. G-7

Notes

On parallel recording

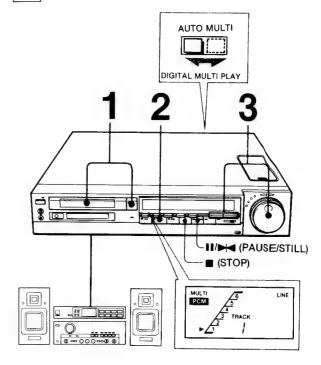
- If a programme is already preset on a track, you cannot preset another programme on the same track.
- For the first timer-recording programme, the tape will not be rewound automatically to the beginning. The recording will start from the current position of the tape.
- If the next programme starts before the tape has been rewound completely, the beginning of the programme will not be recorded.

On series recording

- The track on which timer recordings are made, is the track that is selected in the last timer programme setting.
- After all the preset programmes are preset, the tape will not be rewound to the beginning.

PLAYBACK G-8

G-8



Before playback

- Turn on the audio system so that sound is heard from speakers.
- Set DIGITAL MULTI PLAY on the rear to: AUTO for playing back tapes recorded by this VTR. MULTI for playing back tapes recorded by other VTRs (when their sound cannot be heard with the switch set to AUTO).

Playback

- 1 Insert a cassette.
- 2 Press ► PLAY.
- 3 Turn JOG or press +/- PROGRAM/TRACK/INDEX to select the track to be monitored. The red "▶" indicates the selected track.

Only the track marked with red bar on the rights ide has certain recorded signals. Recordings are not made on the tracks without this indication.

To stop playing back

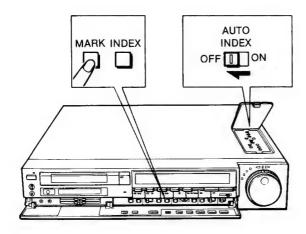
Press STOP.

To stop the tape for a moment Press 11/▶ PAUSE/STILL.

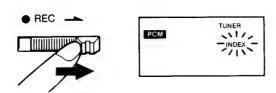
- When DIGITAL MULTI PLAY is set to MULTI, all pars light up even if nothing has been recorded on the tracks.
- While playback, we recommend that you set REC LEVEL to the "0" position. If not noise which appears when you stop the tape, may damage the speakers.

1-8. INDEX FUNCTION

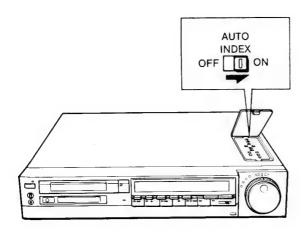
H-1



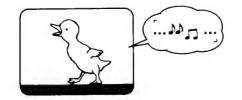
H-2



H-3



H-4



The desired programme can be easily located by the index signal marked on the tape.

This function is effective either to normal video-audio recorded tapes and to digital multi audio recorded tapes.

TO MARK INDEX SIGNALS

Index signals can be marked at any desired point on the tape during recording, timer recording or normal playback.

H-1

- 1 Set AUTO INDEX in the upper compartment to OFF.
- 2 Press INDEX MARK at the point where an index signal is to be marked.

The "INDEX" indication blinks while the index signal is being marked.

An index signal is automatically marked on the tape when

REC is slid to the right or when a timer recording starts.

H-2

The "INDEX" indication blinks in the window while the index signal is being marked.

Notes

- Index signals will not be marked on the tape when the recording is started by releasing the recording pause mode.
- The index function operates also with the index signals marked using the index function (same format) of other recorders.

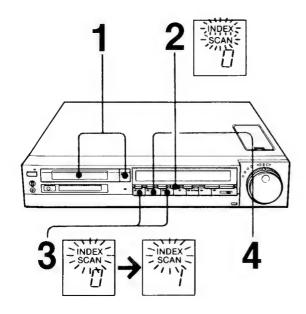
TO MARK INDEX SIGNALS AUTOMATICALLY IN DIGITAL MULTI AUDIO RECORDING [H-3]

Set AUTO INDEX in the upper compartment to ON. The VTR searches for the blank spaces (of approx. 3 seconds) between programmes (musics etc.), and marks index signals.

The "INDEX" indication blinks while the index signal is being marked.

- The sound will decrease and be kept at this volume while the index signal is being marked in the playback mode. In addition, a black bar noise will appear at the bottom of the playback picture during marking H-4 However, the recorded signals are not affected.
- During playback, index signals can be marked on cassette tapes whose safety tab is slid out (including commercially available prerecorded video tapes).
- An index signal may not be registered immediately before a point on the tape where the recording tape speed changes.
- You cannot mark nor erase index signals if no video/audio signals is recorded on the PCM track of the tape.

H-5



- Between each index signal, there must be a minimum space of 2 minutes for LP mode and 1 minute for SP mode.
 - If index signals are marked at shorter intervals, index scan or search functions may not be operated correctly.
- For tapes that index signals are marked automatically, index scan or search may not be made correctly because of the quality of the audio source.
 In this case, set AUTO INDEX to OFF and mark index signals manually.
- Index marking and erasing cannot be made during tape editing. (When the EDIT lamp is lit.)

INDEX SCAN

 To play back the beginning of each programme in sequence H-5

Before operating

Set PCM MODE to NORM, or P (or S). If you have set to P (or S), select the digital multi audio track.

- 1 Insert a cassette that has index signals recorded.
- 2 Press INDEX once.
 The "INDEX" and "SCAN" indications blink alter
- The "INDEX" and "SCAN" indications blink alternately.

 3 To scan the previous programmes, press ◀◀ REW.

 To scan the programmes ahead, press ▶▶ FF.

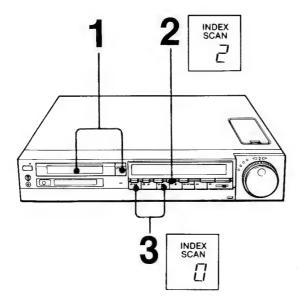
The tape will be rewound or rapidly advanced to the next index signal marked.

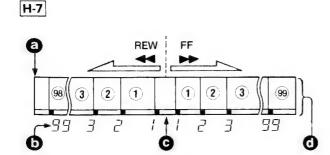
While scanning, the "INDEX" and "SCAN" indicators

blink, simultaneously. The tape will be played back for approximately 10 seconds, and then, rewound or

- advanced to the next index signal.

 Everytime an index signal is detected and playback begins, the displayed index number increases.
- 4 At the desired programme, press ► PLAY. Normal playback of that programme will begin.





INDEX SEARCH H-6

To locate the desired programme

You can locate the desired programme and play it back automatically by designating the number of its index signal. Up to 99th index signal from the present position on the tape can be located.

Before operating

Set PCM MODE to NORM or P (or S). If you have set to P (or S), select the digital multi audio track.

- 1 Insert a cassette that has index signals marked.
- 2 Press INDEX several times until the index number of the desired programme is displayed. For instance, to locate the second programme ahead, two index signals should be detected, so press INDEX until "2" is displayed. On the other hand, to locate the second programme behind, three signals, should be detected, so press the button until "3" is displayed.

H-7 a Beginning of the programme

- Index number
- Present position
- Video tape (or one of the 6 digital multi audio tracks)

Notes

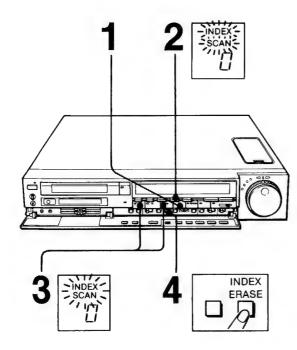
- To designate higher index number, first press INDEX several times, then continue with +/-PROGRAM/TRACK/INDEX or JOG so that the desired index number display appears.
- If you enter an incorrect index number, press
 STOP to reset the display.
- 3 To locate a previous programme on the tape, press REW.

To locate a programme ahead, press ▶► FF.

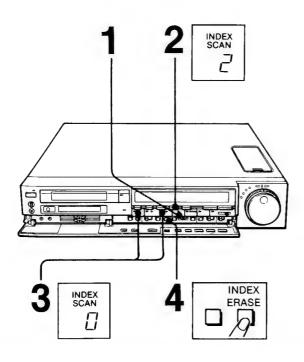
The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed number will decrease. When the number reaches 0, playback of your desired programme will begin.

- If, on a tape, there are portions on which index signals are marked on the first PCM audio track in the digital multi audio mode, and portions on which index signals are marked in the normal mode, the index scan and search in the normal mode cannot be made correctly.
- For index scan or search in digital multi audio mode, set AUDIO MONITOR to PCM or MIX.
- Index scan and search can be activated during playback mode. (In the mode which was being selected when the playback started.)
- While the index signals are being scanned or located, nothing is displayed on the monitor and sound is cut off.
- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- If the tape reaches the end during index scan or index search, the tape will not be rewound automatically.

H-8



H-9



When the desired programme cannot be played back with the index function, check the following:

- The nearest index signal may not have been counted.
 If the point where you pressed

 REW or

 FF is fairly close within 2 minutes of the normal tape-run to the nearest index signal, that signal will not be counted.
- Is there a space of more than 2 minutes between two index signals?
 If there is more than one index signal marked within an interval of 2 minutes of the normal tape-run, the mechanism may not function properly.

TO ERASE INDEX SIGNALS [H-8]

Before operating

Set PCM MODE to NORM or P (or S). If you have set to P (or S), select the digital multi audio track

Erasing while index scanning — To erase the index signals in sequence

- 1 Stop the tape with STOP.
- 2 Press INDEX once.
- 3 Press ■ REW or ▶► FF. The tape will be rewound or rapidly advanced to the next index signal and playback will begin.
- 4 Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.

 The "INDEX" indication blinks and the "SCAN"

The "INDEX" indication blinks and the "SCAN" indication lights steadily while the index signal's erasure.

After the erasure, index scan will resume. At each index signal located, press INDEX ERASE.

To stop index scanning, press ■ STOP.

Notes

- Press INDEX ERASE more than 2 seconds after the playback starts.
- The index signals recorded immediately after an unrecorded portion on a tape, or on a portion where the recording tape speed has been changed or two recordings have been made continuously will not be erased.

During index erasing, a black bar noise will appear at the bottom of the playback picture.

Erasing while index searching — To erase a particula r index signal [H-9]

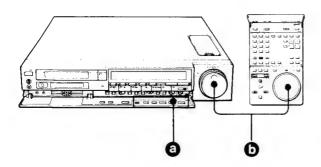
- 1 Stop the tape with STOP.
- 2 Press INDEX button several times until the number of the index signal to be erased is displyed.
- Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.

The "INDEX" indication blinks while the indexs ignal is being erased.

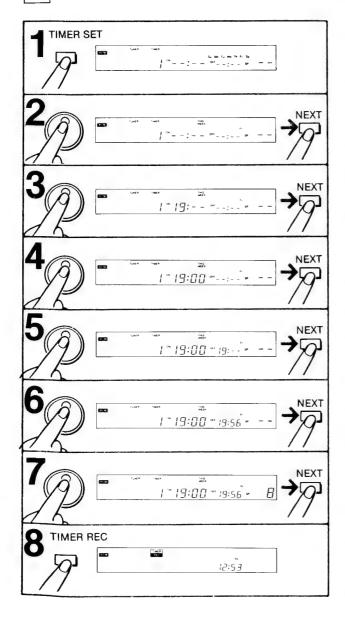
After the erasure, the unit returns to the normal plays ack.

1-9. TIMER-ACTIVATED RECORDING

1-1



1-2



Six recordings can be preset to be made between today and Saturday of the week after next.

							Today
Su	Мо	Tu	We	Th	Fr	Sa	
			(1)	2	3	4)	-This week
5	6	7	8	9	10	11)	
12	13	14	15	16	17	18)	Next week
19	20	21	22	23	24	25	The week after next

Before setting the timer

- The clock must be set correctly.
 For the setting, see page 16.
- Make sure the cassette tape is long enough to record all the programmes.
- Be sure the safety tab of the cassette has not been slid out.
- Set the selectors as in "Before recording" on page 18.

1-1

Buttons for timer setting

You can use the buttons and JOG dial on the recorder.

NEXT button

Every time you press the NEXT button, the item to be set will blink.

6 JOG dial

To set the week and day, the turn-on and turn-off times and the channel, turn clockwise to advance and anticlockwise to reverse.

Operation 1-2

Suppose you want to make a recording of channel 8 from 7:00 PM to 7:56 PM Friday.

- 1 Press TIMER SET.
- 2 Set the week and day with JOG. Then, press NEXT.
- Set the turn-on hour with JOG. Press NEXT.
- 4 Set the minute with JOG. Press NEXT.
- 5 Set the turn-off hour with JOG. Press NEXT.
- 6 Set the minute with JOG. Press NEXT.
- 7 Set the TV programme number to be recorded with JOG.

Press NEXT.

To preset other programmes, repeat steps 1 to 7.

8 Press TIMER REC.

The power will be turned off and the recorder will enter the standby mode. (The current time is displayed.)

Recording will start at the preset time and will automatically stop when the recording is completed. The memory of the timer programme will be erased if it is for only one day and the timer programme numbers will advance one by one.

Notes

- Once the TIMER REC indicator has been displayed, only the functions of CHECK and TIMER REC can be activated. For the usual manual operations, press TIMER REC again so that the indicator goes off, and then, turn on the power.
- Timer recordings of the signals from the AUDIO IN jacks, in the digital multi audio mode can also be made.
 See page 27.

If you select an incorrect digit for the turn-on/off time setting, press CLEAR. The programme which is currently being set will be cancelled but the other programmes previously set will remain.

To set the week and day

The week and day indications change in the direction of the arrow, starting from today, when you turn JOG clockwise; and in the reverse direction when you turn JOG anticlockwise.

The day(s) you want the recording(s) made	Display
At the same time every day	Su Mo Tu We Th Fr Sa
Only one day	TḤIS WEEK We (Today) → Th →···→ Sa¬ NEXT WEEK → Su →···→ Sa WEEK AFTER NEXT Su →···→ Sa
At the same time on the same day every week	EVERY WEEK → Su →···→ Fr → Sa —
At the same time every day from Monday to Friday	→ Mo Tu We Th Fr——
At the same time every day from Monday to Saturday	→ Mo Tu We Th Fr Sa

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To check the timer settings

Press CHECK.

Every time you press CHECK, each programme will be displayed in the window.

To change the settings

- 1 Press TIMER REC. The TIMER REC indicator goes off.
- 2 Press CHECK to select the programme to be changed.
- 3 Press TIMER SET.
- 4 Press NEXT until the item to be changed blinks.
- 5 Change the setting with JOG.
- 6 Press NEXT so that the tape counter and the current time appear in the window.
- 7 Press TIMER REC again to reactivate the timer.

To erase the memory of a particular programme

- 1 Press TIMER REC. The TIMER REC indicator goes off.
- 2 Press CHECK to select the programme to be erased.
- 3 Press CLEAR. The memory of the programme will be eliminated.
- 4 If other programmes have been preset for recording, press TIMER REC again to reactivate the timer.

DURING RECORDING

To stop the timer recording

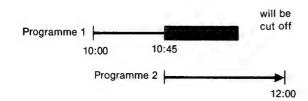
Press TIMER REC. The recording will stop and the power will be turned off.

When the tape ends during timer recording

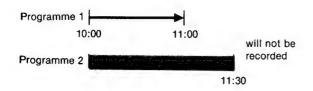
The tape stops but the tape will not be rewound.

The ■ STOP and ■ / PAUSE/STILL buttons do not function during a timer recording.

1-3







NOTES ON TIMER-ACTIVATED RECORDINGS

Troubles when TIMER REC is pressed

The cassette will be ejected automatically

The "TIMER-REC"

indicator disappears

-{

- The cassette inserted has the safety tab slid out.
- No cassette is inserted.
- The tape is at its end
- The turn-on time has been set before the current time.

When the presettings of your timer-activated recordings overlap $\boxed{\text{1.3}}$

The recording of programme 2 will begin before the programme 1 is finished.

In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of two programmes are the same 1.4 The recording of the programme having the lower programme number will be made. The memory of the programme having the higher number will be cleared. In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of one programme is the same as the turn-off time of another programme

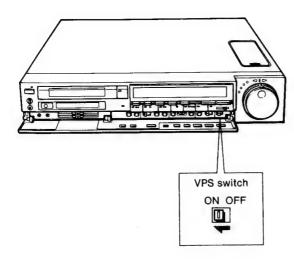
When a timer recording starts, the unit is set to recording pause mode 6 seconds before the preset turn-on time. The pause mode is released exactly at the preset turn-on time and recording starts approximately 1 second later. Therefore, the end of the first programme will not be recorded for 6 seconds. Both recordings, however, will not be made smoothly.

If a power interruption occurs before a timer recording The clock will stop and "Su 0:00" will light up. This means that the memory of the timer programmes has been completely erased. Reset the clock and timer programmes,

A short power interruption of less than approximately 20 seconds will not affect the memory. The clock will show the correct time and the timer programmes will be performed.

If the power was interrupted during a timer recording Recording will stop and the power will be turned off. If the interruption was less than approximately 20 seconds, the recording will resume.

1-5



— EV-S850PS only 1-5

To avoid missing a timer-activated recording because of a delay in the transmission sequence or a change in the programme schedule, the West German broadcasting stations have agreed to transmit a special code, called the VPS (Video Program System) code, together with the TV programme. The EV-S850PS is equipped with a VPS switch which allows you to preset recording times and insures that your programmes will be recorded regardless of delays.

- 1 Set the VPS switch to ON. The VPS indication appears in the display window.
- 2 Set the timer to the time listed in the VPS programme guide which corresponds to the programme you want to record.

The unit will be turned on 10 minutes before the preset time, but recording will start when the preset programme begins.

Notes

- If the station you want to record fails to transmit the VPS code signal with the programme, or the VPS code cannot be detected for some reason, recording will begin at the time you preset.
- Be sure to set the timer according to the VPS programme guide, otherwise programme will not be recorded.
- Even if the preset programme does not begin, the unit will remain prepared for recording until 4:00 AM of next day. Or the unit will be prepared to record for 23 hours 50 minutes when the preset time is between 0:00 AM to 4:00 AM.
- When the unit receives a VPS programme interruption code during recording (for example, when urgent news is inserted), it will stop recording. As soon as the interrupted programme resumes, recording will continue.

Multi-programme and multi-channel recording

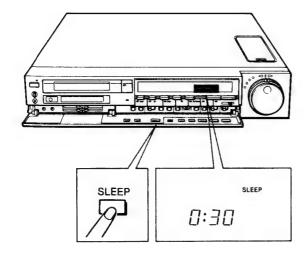
The VPS function allows you to record several successive programmes.

Occasionally, these programmes may overlap or conflict with one another. In these cases the following rules apply.

- If you are recording two successive programmes, on the same channel and the first is delayed past the starting time of the second, the first setting is cancelled and the second programme is recorded.
- If you are recording two successive programmes, each on a different channel, and the first is delayed past the starting time of the second, the first will be cancelled, and the VPS function will not be activated for the second programme and the second programme will be recorded beginning at the preset time even if the second programme is delayed.
- If the first programme is delayed so that it is not finished before the second is scheduled to begin, the unit will automatically switch to the second programme at the preset time and the second programme will be recorded.

1-11. USE OF THE SLEEP TIMER

I-6



— To preset the turn-off time of the unit 1-6

When recording or playback is being made, preset the turn-off time of the unit.

The recording or playback duration can be set for up to 5 hours by 30 minutes.

Press SLEEP.

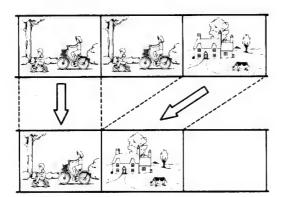
Every time you press on SLEEP, the recording/playback duration indication changes as follows:

$$0:30 \rightarrow 1:00 \rightarrow 1:30 \rightarrow 2:00 \rightarrow \cdots \rightarrow 5:00 \rightarrow \begin{array}{c} \text{Current time display} \\ 30 \text{ min. One hr. One and } 2 \text{ hrs.} \\ \text{a half hr.} \end{array}$$

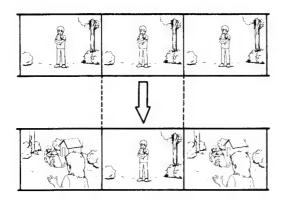
The duration decreases minute by minute as the recording or playback advances. The power will be turned off automatically about 30 seconds after the duration time has elaseped.

1-12. TAPE EDITING

J-1



J-2



ADVANCED EDITING

If another Sony VTR with intercomponent control terminals are used with this unit, use of the supplied Remote Commander brings you much more convenience in editing operations.

You can operate separately the two units (player and recorder) by the supplied Commander. In addition, once you have set them in tape editing standby mode, you can start and stop playback/recording simultaneously with both units simply by pressing the SYNCHRO EDIT button on the Commander. (= SYNCHRO-EDITING)

Synchro-editing

With this function, playback start/stop of one VTR can be activated in synchronization with recording start/stop of the other VTR.

This function is efficient, for example, when you want to reproduce only the particular portions of a tape onto another tape, or to insert the selected scenes from an original tape onto a pre-recorded tape, etc.

Two methods of synchro-editing are available:

When this unit is used as a player J-1

"Assemble editing" can be made.

On this unit, designate the desired scenes of the original tape.

These scenes can be "assembled" (= recorded) onto the other tape of another VTR.

When this unit is used as a recorder J-2

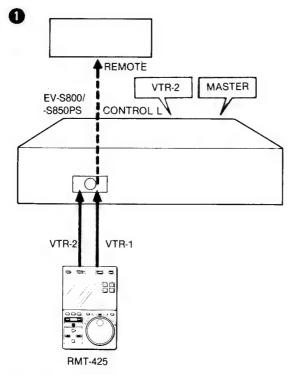
"Automatic insert editing" can be made.

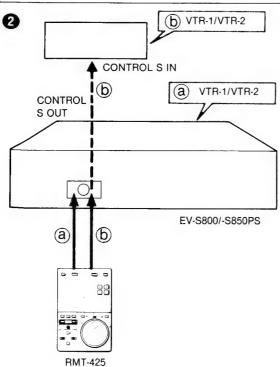
On this unit, locate a portion of the tape on which any scenes from other original tape must be "inserted".

Notes

- Do not use simultaneously the above "synchro-editing" and the insert recording function of the VTR (ex CCD-V8 series) which is used with this unit.
- If the VTR to be used with this unit is equipped with the CONTROL L connector and the CONTROL S INjack, make the connection to the CONTROL S IN jack. If the CONTROL L connector is used, the editing maynot be made correctly.

J-3





How are the control signals transmitted? J-3

 About MASTER/SLAVE and COMMAND MODE selectors on this unit —

When the connection is made to the CONTROL L jack of this unit

MASTER/SLAVE selector Set to MASTER.

If this unit is controlled by another equipment (ex: RM-E100V), set to SLAVE.

COMMAND MODE selector Set to VTR-2.

Set as above, commands emitted by the Remote Commander in the VTR-2 mode control only this unit and commands in the VTR-1 mode are transmitted to the other VTR through this unit.

When the connection is made to the CONTROL S OUT jack of this unit

COMMAND MODE selector

Set to VTR-1 or VTR-2 so that the command mode of this unit is different than the other VTR's command mode.

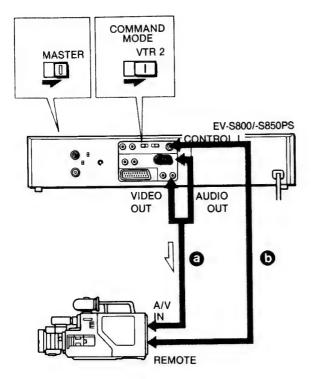
MASTER/SLAVE selector

Set to either position. This selector has no effect in this connection.

Set as above, commands emitted by the Remote Commander in a command mode are effective only to one unit and commands in the other command mode control only the other unit.

In both cases (1) and 2), point the Commander to the remote sensor of this unit and switch the command mode selector on the Commander to VTR 1 or VTR 2 each time you want to control the player or the recorder in editing operations.

J-4



Editing tapes from this unit to the 8 mm video cameral cassette recorder having a 5-pin REMOTE connector

- Assemble editing -

Connection

J-4

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating

On this unit,

set the switches as follows:

- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21.)

On another VTR

Set to the LINE IN mode.

Operation

	e Commander's and mode selector	Operation
1	VTR 1	1 Play back the tape and decide the starting point of the recording.2 Set to the recording pause mode.
2	VTR 2	 Play back the tape and decide the ending point of the recording. Press COUNTER RESET to display "0000" in the window. Rewind the tape and decide the starting point of the recording. Set to the playback pause mode. Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches "0000" point, editing stops automatically and each unit enters the playback or recording pause mode Repeat steps 1 to 5.

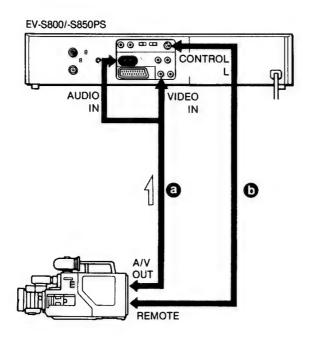
For accurate setting of the starting/ending point, use JOG/ SHUTTLE.

To stop the on-going editing operation, press SYNCHRO EDIT or STOP with Commander's command mode sell ector set to VTR 2.

Note

During synchro-editing, you can set this unit to various speed playback modes.

(ex: slow-motion, frame-by-frame pictures etc. can be recorded.)



Editing tapes from the 8 mm video camera/cassette recorder having a 5-pin REMOTE connector to this unit

- Automatic insert editing -

Connection

J-5

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating

On this unit

Set the switches as follows:

- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2. Press INPUT SELECT to display LINE in the window.

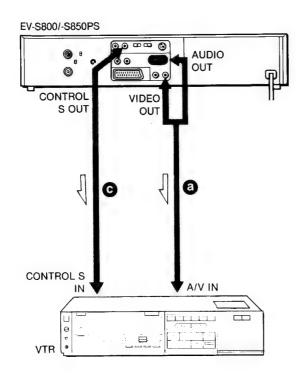
Operation

	e Commander's and mode selector	Operation
1	VTR 1	Play back the tape and decide the starting point of the recording. Set in the playback pause mode.
2	VTR 2	 Play back the tape and decide the ending point of the recording. Press COUNTER RESET to display "0000" in the window. Rewind the tape and decide the starting point of the recording. Set to the recording pause mode. Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches the "0000" point, editing stops automatically and each unit enters the playback or recording pause mode.

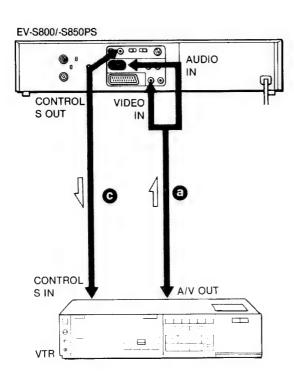
For accurate setting of the starting/ending point, use JOG/SHUTTLE.

To stop the on-going editing operation, press SYNCHRO EDIT or STOP with Commander's command mode selector set to VTR 2.

J-6



J-7



Editing tapes from this unit to a Betamax or 8 mm VTR having a CONTROL S IN jack — Assemble editing —

Connection

J-6

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR. For audio/video connection, see the illustration.

Before operating

On this unit

Set the switches as follows:

- COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21 "To select the monitor sound".)

On another VTR

Set to the LINE IN mode.

Operation

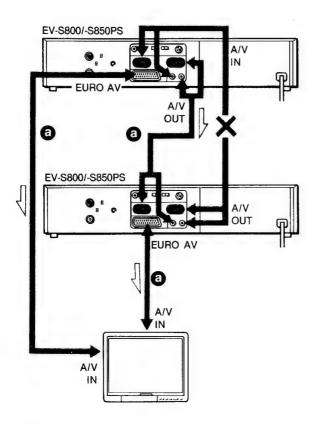
Operation is similar to that is described in "Assemble editing" on page 45. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

Editing tapes from a Betamax or 8 mm VTR having a CONTROL S IN jack to this unit — Automatic insert editing —

Connection

J-7

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR.
For audio/video connection, see the illustration.



Before operating

- Set COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type. (See page 21 "To select the monitor sound".)
- Press INPUT SELECT to display LINE in the display window.

Operation

Operation is similar to that is described in "Automatic insert editing" on page 38. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

Caution J-8

Do not make the audio/video in and out connections simultaneously between two VTRs.

Editing tapes from this unit to certain VTRs by using the RM-E100V editing controller J-9

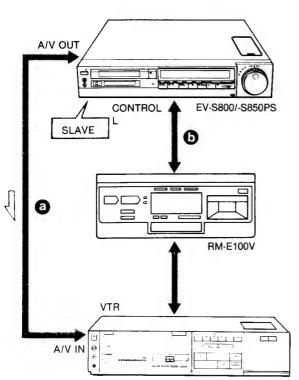
Connect the RM-E100V between the video camera recorder and this unit. With this controller, you will be able to preset the locations of the scenes you want to record (up to 8) in the controller and with a press of a button, these scenes will be recorded by this unit automatically in the order preset.

For details, refer to the instruction manual of the RM-E100V.

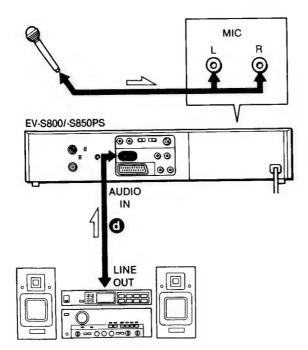
Note

Set MASTER/SLAVE selector of this unit to SLAVE. (COMMAND MODE selector can be set at any position.)

J-9







AUDIO DUBBING

Connection J-10

To dub signals from the audio system

Connect AUDIO IN of this unit to the REC OUT jacks of the audio system.

To dub signals from the microphones

Connect microphone(s) to MIC L/R.

To dub signals of TV programmes

You can record audio signals from the built-in tuner.

Audio signals are dubbed as follows:

Track	РСМ	track
Microphone connected to	L channel	R channel
L jack	Microphone sound	Microphone sound
R jack		Microphone sound
L and R jacks	Microphone sound from the L jack	Microphone sound from the R jack

Operation

- 1 Set PCM MODE to NORM.
- 2 Press INPUT SELECT and display:

LINE to dub audio signals from the audio system and/or microphone(s).

TUNER to dub signals of TV programmes and/or microphone(s).

- 3 Press ▶.
- 4 Decide the starting point of audio dubbing, and press

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶

 11/▶
- 5 Press AUDIO DUB.
- 6 Press II/► to release the pause mode, and at the same time start the audio source—such as talking into the microphone, playing back a tape recorder, etc.

Notes

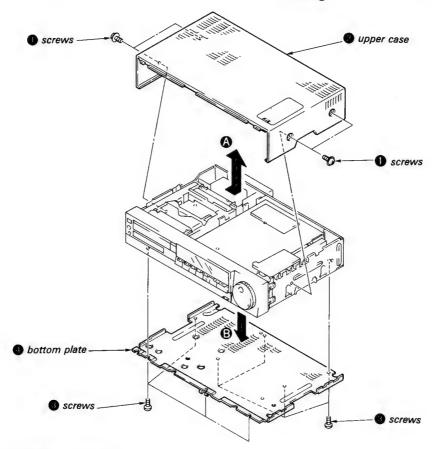
- When the tape which is recorded in the SP mode is used for dubbing, the black band appears in the center and lower positions of the screen.
 - When the tape which is recorded in the LP mode is used for dubbing, the black band appears in the lower position of the screen. But the recorded picture will not be affected.
- When the tape which is recorded in the different recording times is used for dubbing, noise will be heard at the point where the recording time is changed.

For PCM recording using a PCM digital audio processor which is not based on the 8 mm PCM format Set SHRPNESS to the position between the top center and SHARP, and set REC MODE to SP.

SECTION 2 DISASSEMBLY

2-1. REMOVAL OF CABINET CASE

- 1) Remove the four screws 1.
- 2) Remove the upper case 2 in the direction shown by the
- 3) Remove the eight screws 3.
- 4) Remove the bottom plate 1 in the direction shown by the

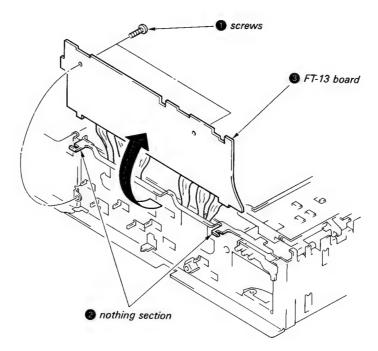


2-2. REMOVAL OF FRONT PANEL

- 1) Remove the three screws 1.
- 2) Pull out the connector (CN2) 2 and remove the control
- 3) Remove the five claws 1 and the notching section 1.
- 4) Remove the connector 6 and remove the front panel 0 in the direction shown by the arrow. 3 control switch block d claw claws front panel connector CN2 (white) screws notching section 6 connector claws

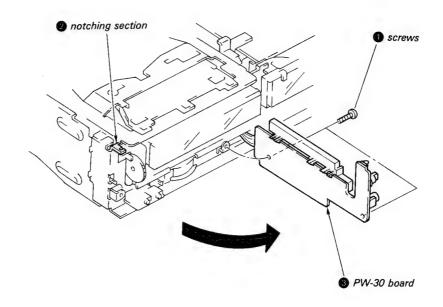
2-3. OPENING OF FT-13 BOARD

- 1) Remove the two screws 1.
- 2) Remove the FT-13 board 3 from the two notching section 2.
- 3) Open the FT-13 board in the direction shown by the arrow.



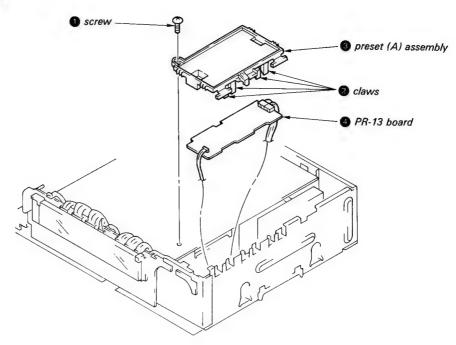
2-4. OPENING OF PW-30 BOARD.

- 1) Remove the two screws 1.
- 2) Remove the PW-30 board 3 from the notching section
- 3) Open the PW-30 board 3 in the direction shown by the arrow.



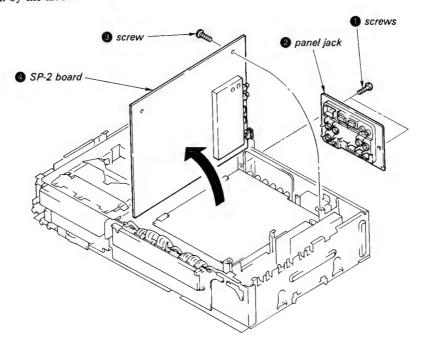
2-5. REMOVAL OF PR-13 BOARD

- 1) Remove the screw 1.
- 2) Take off the four claws 2.
- 3) Remove the preset (A) assembly 3.
- 4) Remove the PR-13 board 4.



2-6. OPENING OF SP-2 BOARD

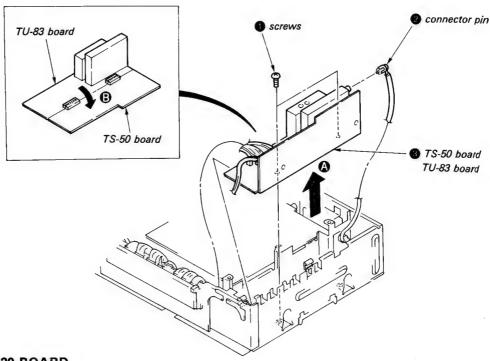
- 1) Refer to the "REMOVAL OF PR-13 BOARD", and remove the preset (A) assembly.
- 2) Remove the two screws 1.
- 3) Remove the panel jack 2.
- 4) Remove the screw 3, and remove the SP-2 board 4 in the direction shown by the arrow.



2-7. REMOVAL OF TS-50, TU-83 BOARD

- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws 1.
- 3) Pull out the connector pin 2.

- 4) Remove TS-50, and TU-83 board 3 in the direction shown by the arrow (A).
- **Note:** At this time, take care not to injure the board by scratching it.
- 5) Open the TS-50 board in the direction shown by the arrow **3**.

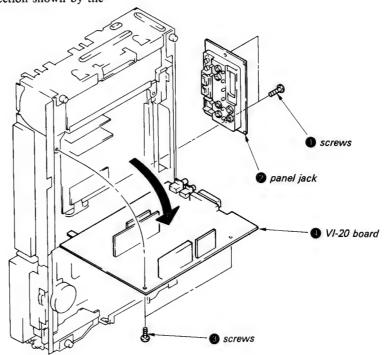


2-8. OPENING OF VI-20 BOARD

- 1) Remove the two screws 1.
- 2) Remove the panel jack 2.
- 3) Remove the two screws 3.

arrow.

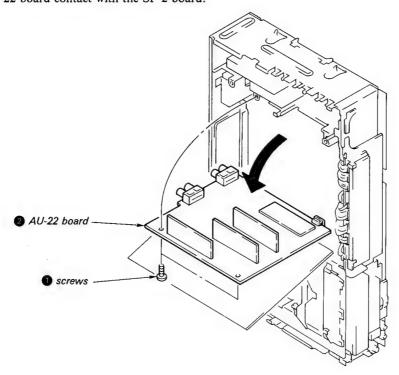
4) Open the VI-20 board 1 in the direction shown by the



2-9. OPENING OF AU-22 BOARD

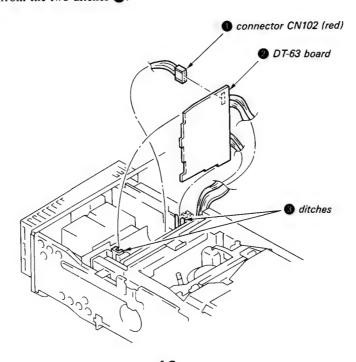
- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws 1.
- 3) Open the AU-22 board 2 in the direction shown by the arrow

Note: When opening the AU-22 board, take care not to let the AU-22 board contact with the SP-2 board.



2-10. REMOVAL OF DT-63 BOARD

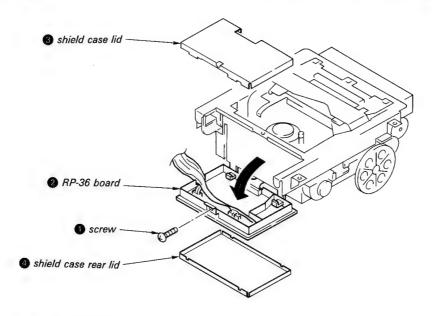
- 1) Pull out the connector (CN102) 1.
- 2) Remove the DT-63 board 2 from the two ditches 3.



2-11. REMOVAL OF RP-36 BOARD

- 1) Refer to the "REMOVAL OF MECHANICAL BLOCK", and remove the mechanical block.
- 2) Remove the screw 1.

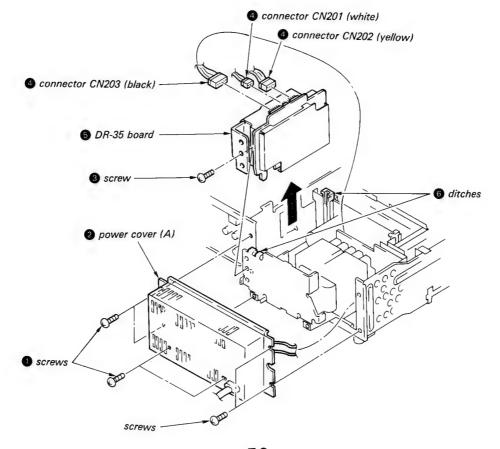
- Open the RP-36 board 2 in the direction shown by the arrow.
- 4) Remove the shield case lid 3 and shield case rear lid 4.



2-12. REMOVAL OF DR-35 BOARD

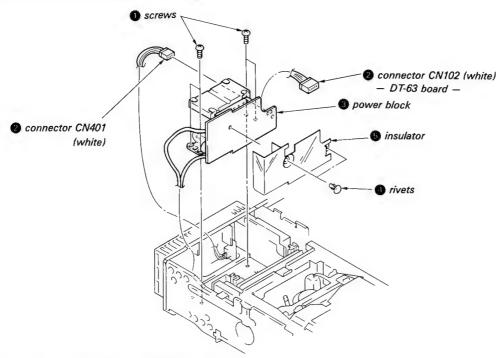
- 1) Remove the six screws 1.
- 2) Remove the power cover **A** 2.
- 3) Remove the screw 3.

- 4) Pull out the three connectors (CN201, CN202, CN203) 4.
- 5) Remove the DR-35 board 5 from the two ditches 6.



2-13. REMOVAL OF POWER BLOCK (DS-16 BOARD)

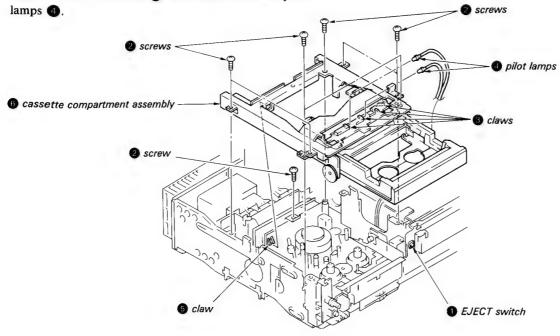
- 1) Refer to the "REMOVAL OF DT-63", and remove the DT-63 board.
- 2) Remove the four screws 1.
- 3) Pull out the two connectors (CN102, CN401) 2.
- 4) Remove the power block (DS-16 board) 3.
- 5) Remove the two rivets 1.
- 6) Remove the insulator 6.



2-14. REMOVAL OF CASSETTE COMPARTMENT **ASSEMBLY**

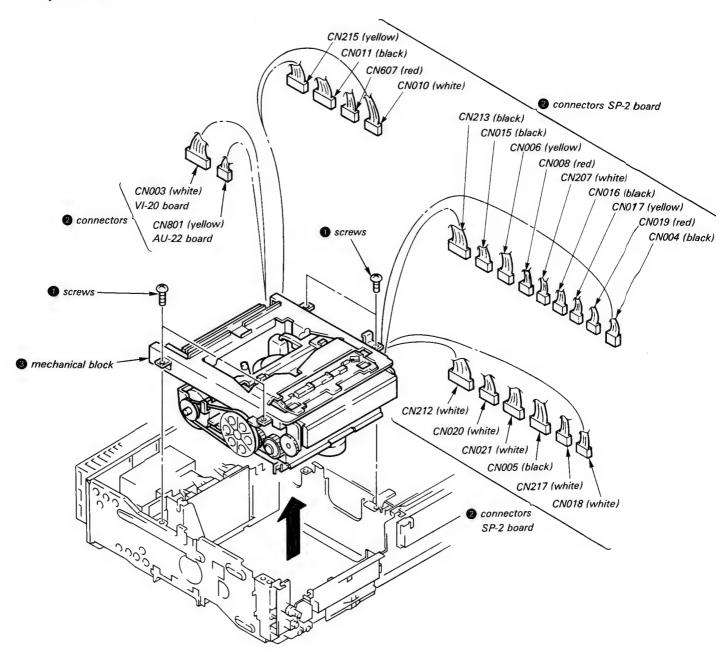
- 1) Turn on the power and push the EJECT switch 1 then put the cassette compartment assembly 6 in the EJECT
- 2) Remove the eight screws 2.
- 3) Take off the four claws 3 and remove the two pilot lamps 4.
- 4) Take off the claw 5 and remove the cassette compartment assembly 6.

Note: After performing EJECT state, be sure to turn off the power before separating the assembly.



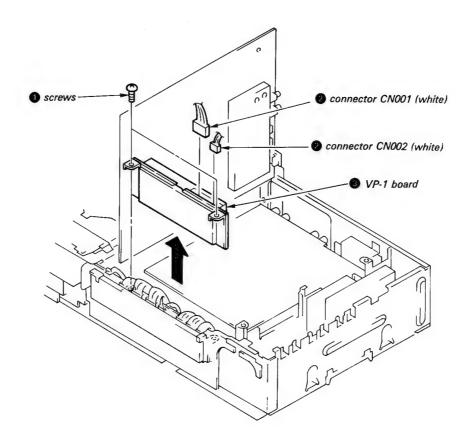
2-15. REMOVAL OF MECHANICAL BLOCK

- 1) Remove the four screws 1.
- Pull out the twenty one connectors (CN212, CN020, CN021, CN005, CN217, CN018, CN213, CN015, CN006, CN008, CN207, CN016, CN017, CN019, CN004, CN215, CN011, CN607, CN010, CN003, CN801)
- 3) Remove the mechanical block 3 in the direction shown by the arrow.

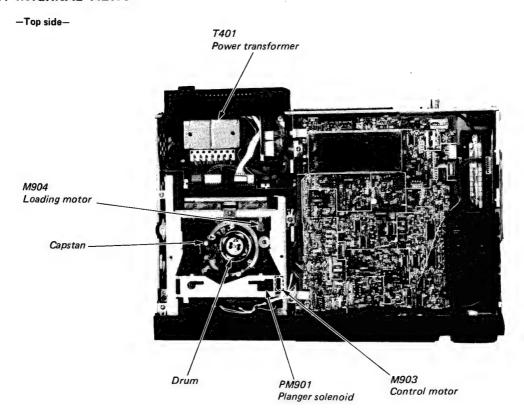


2-16. REMOVAL OF VP-1 BOARD

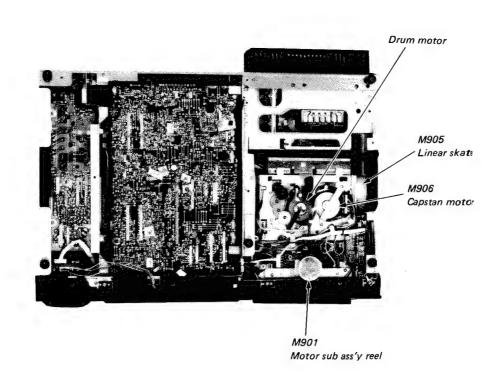
- 1) Refer to the "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws 1.
- 3) Pull out the two connectors (CN001, CN002) 2.
- 4) Remove the VP-1 board 3 in the direction shown by the arrow.



2-17. INTERNAL VIEWS

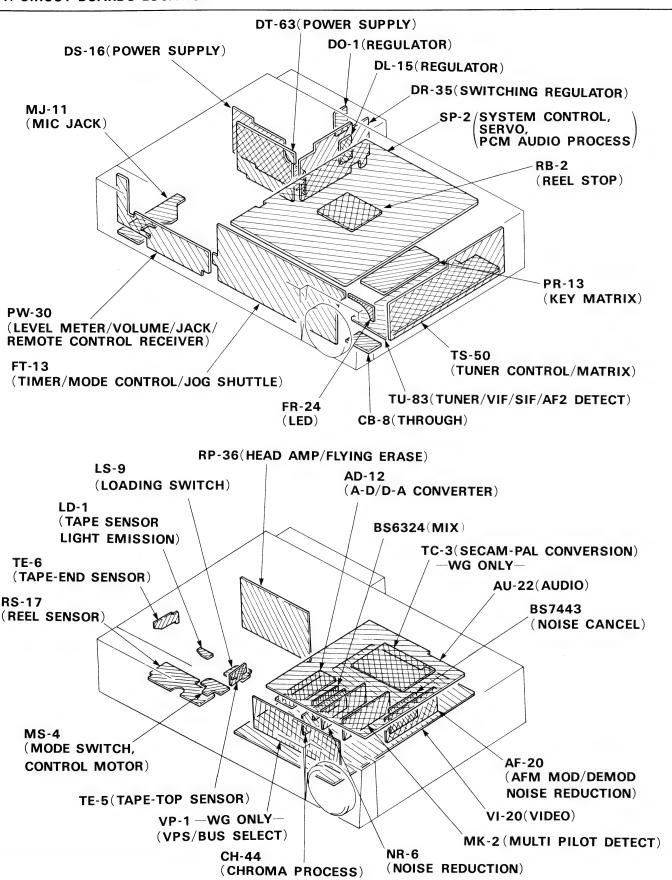


-Bottom side-

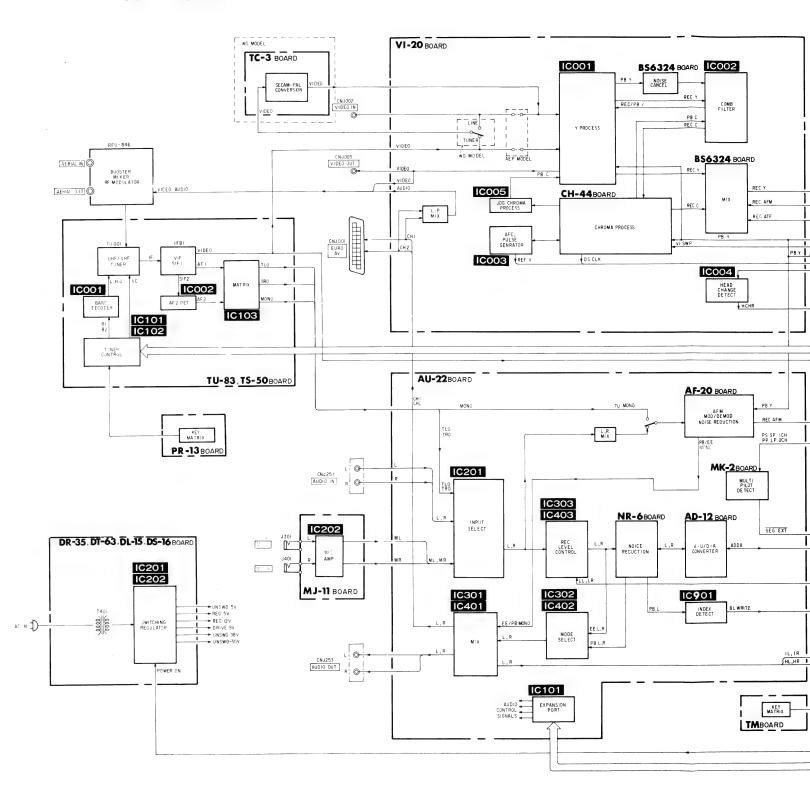


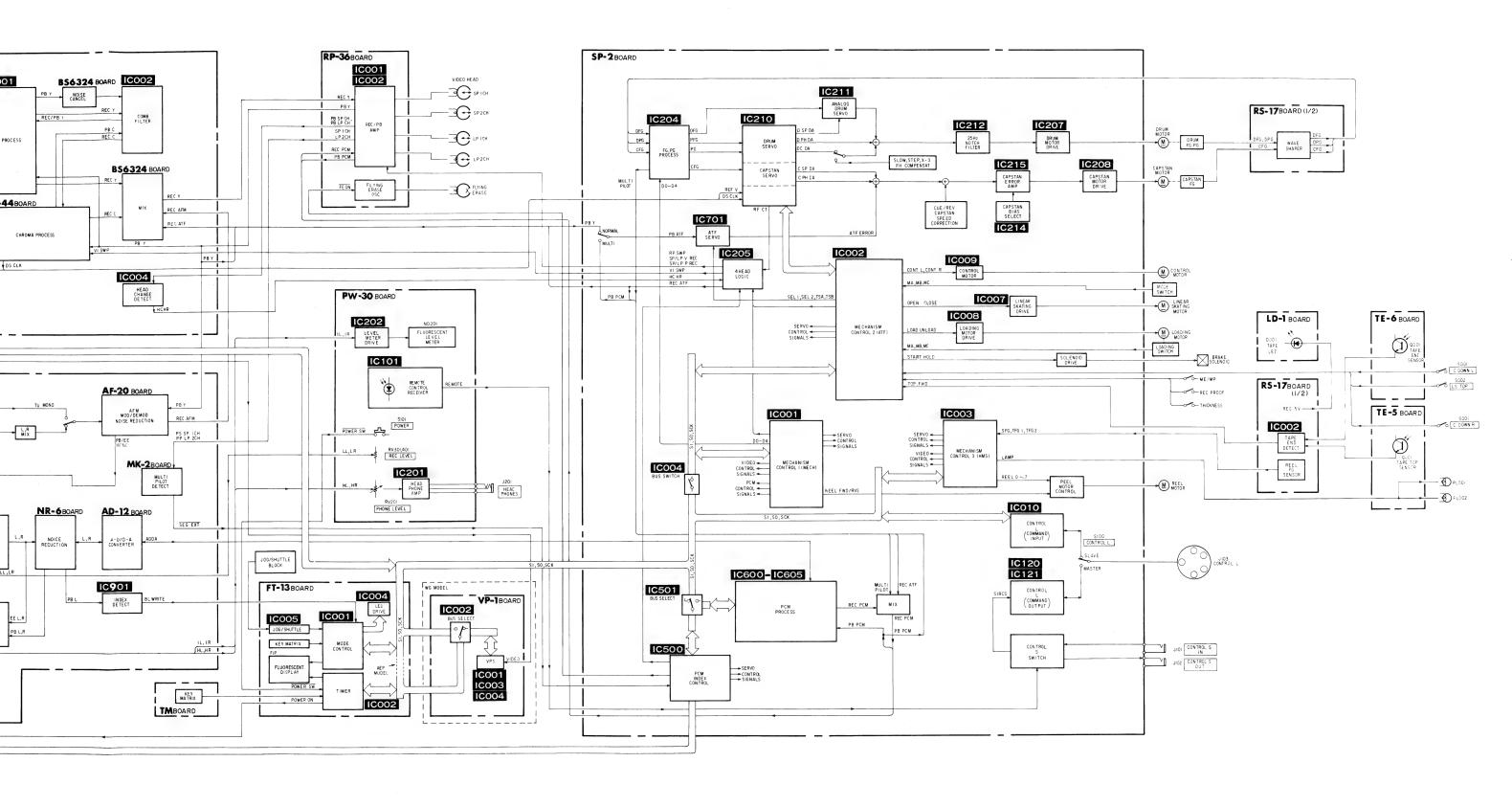
SECTION 3 DIAGRAMS

1. CIRCUT BOARDS LOCATION



3-2. OVERALL BLOCK DIAGRAM

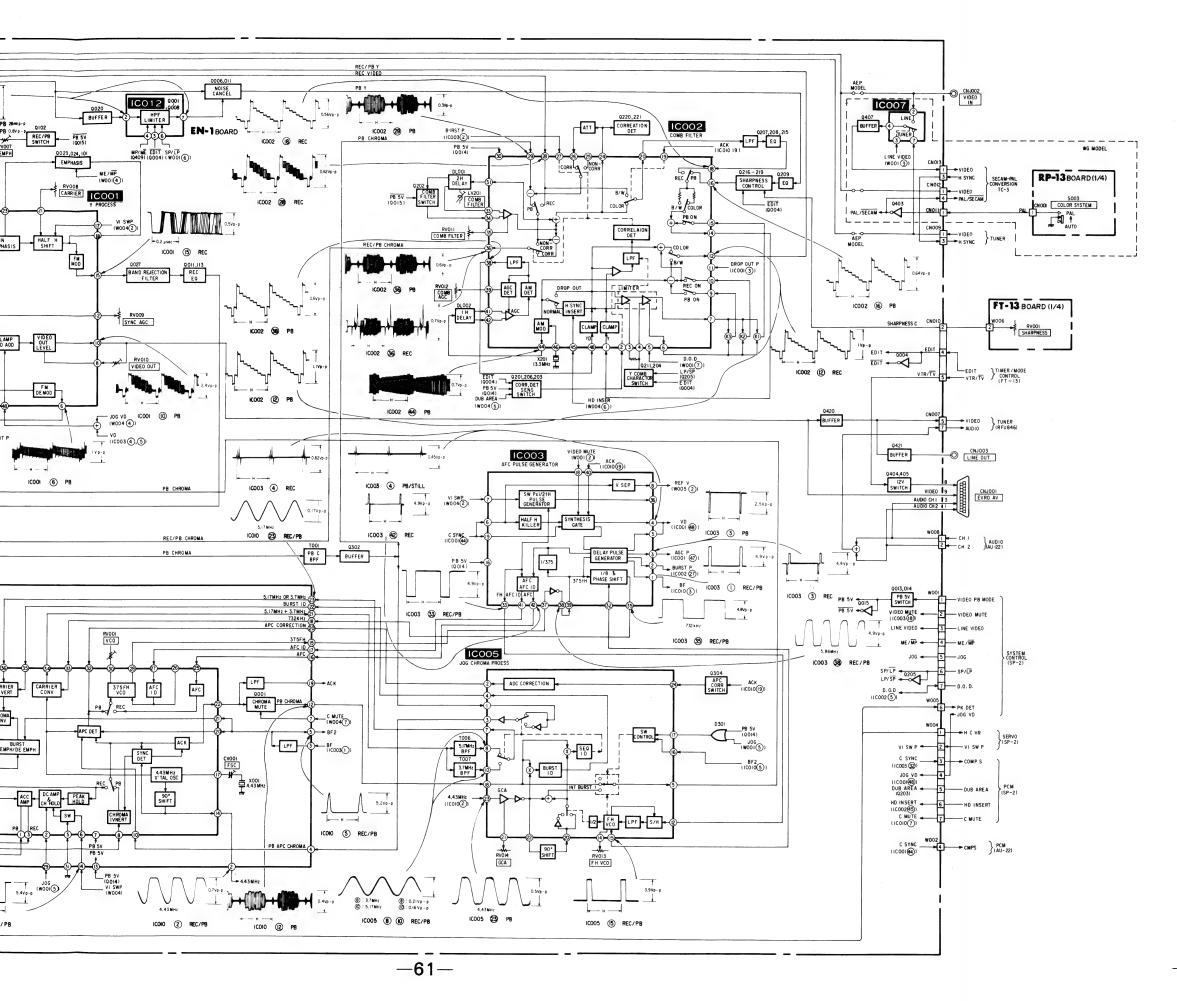




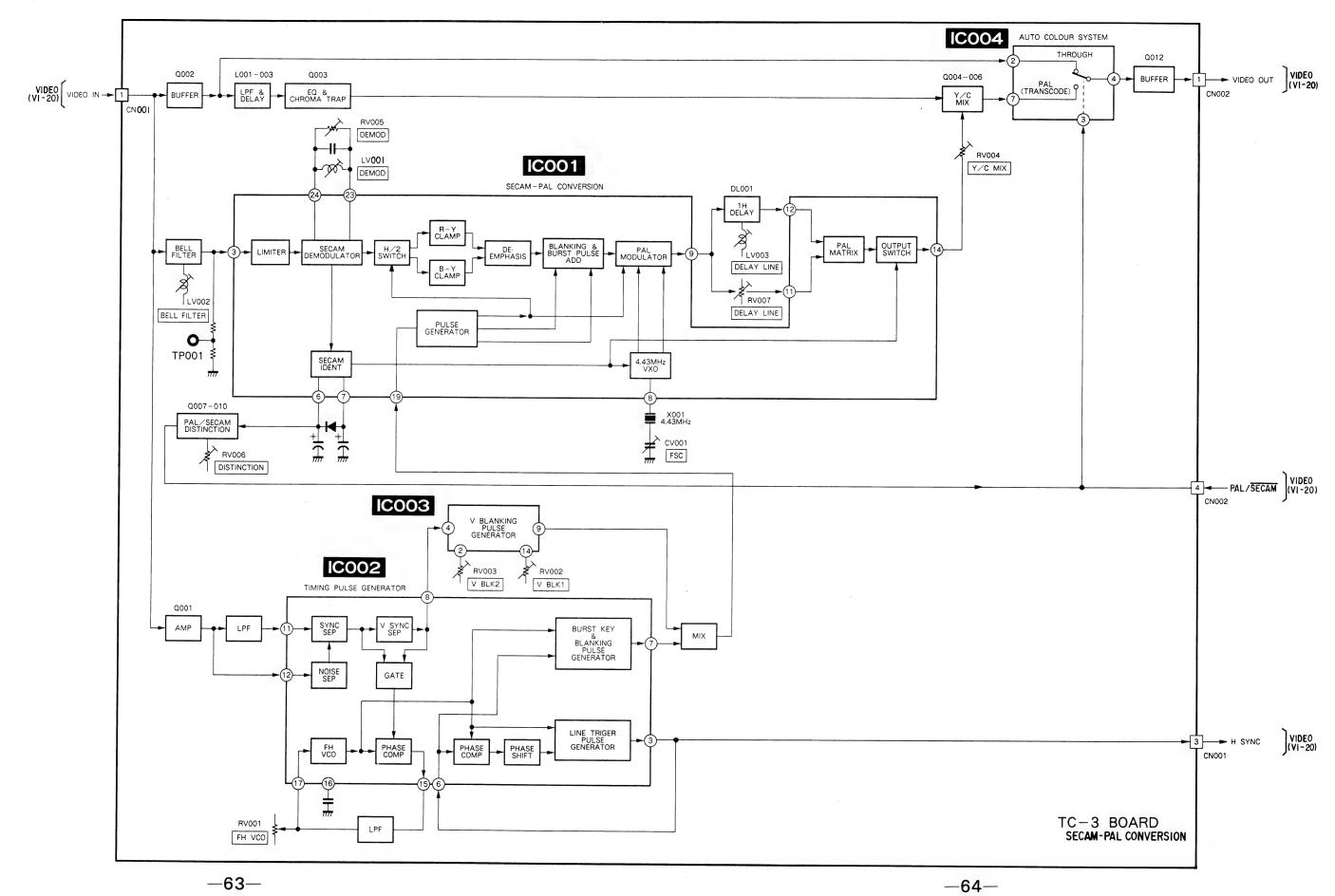
-60-

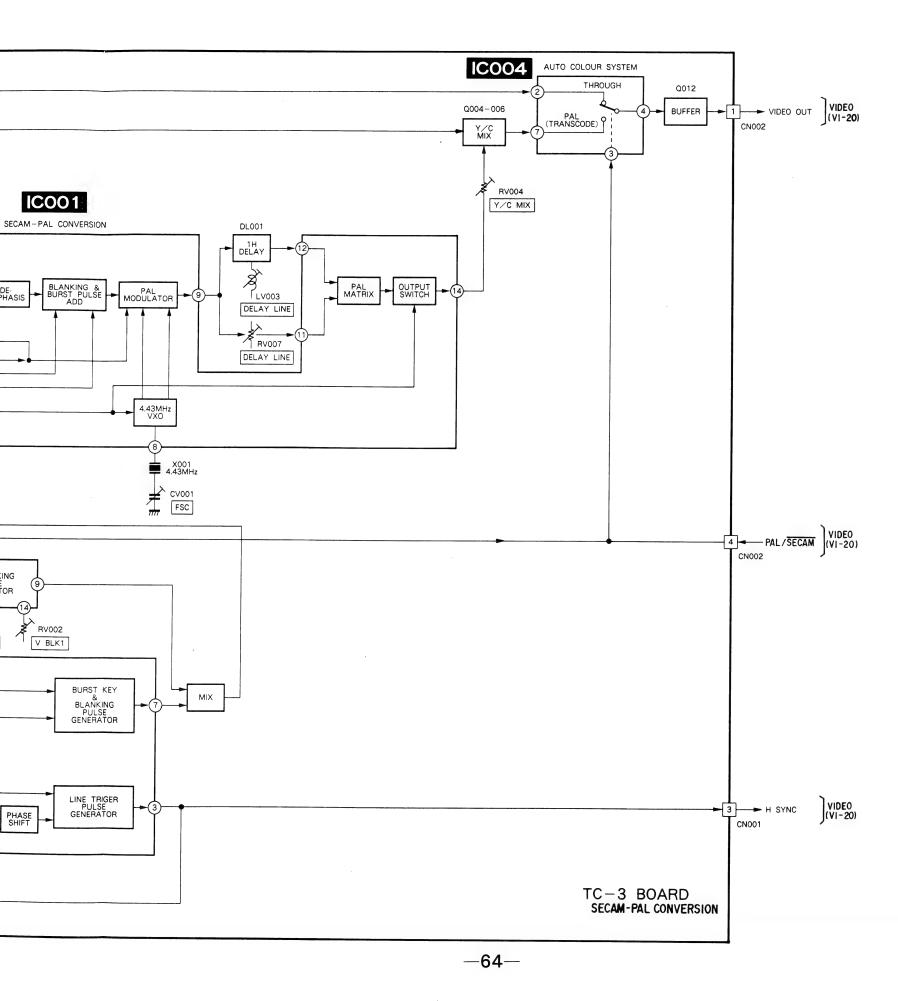
PCM FE ON SYSTEM CONTROL (SP-2)

-59-

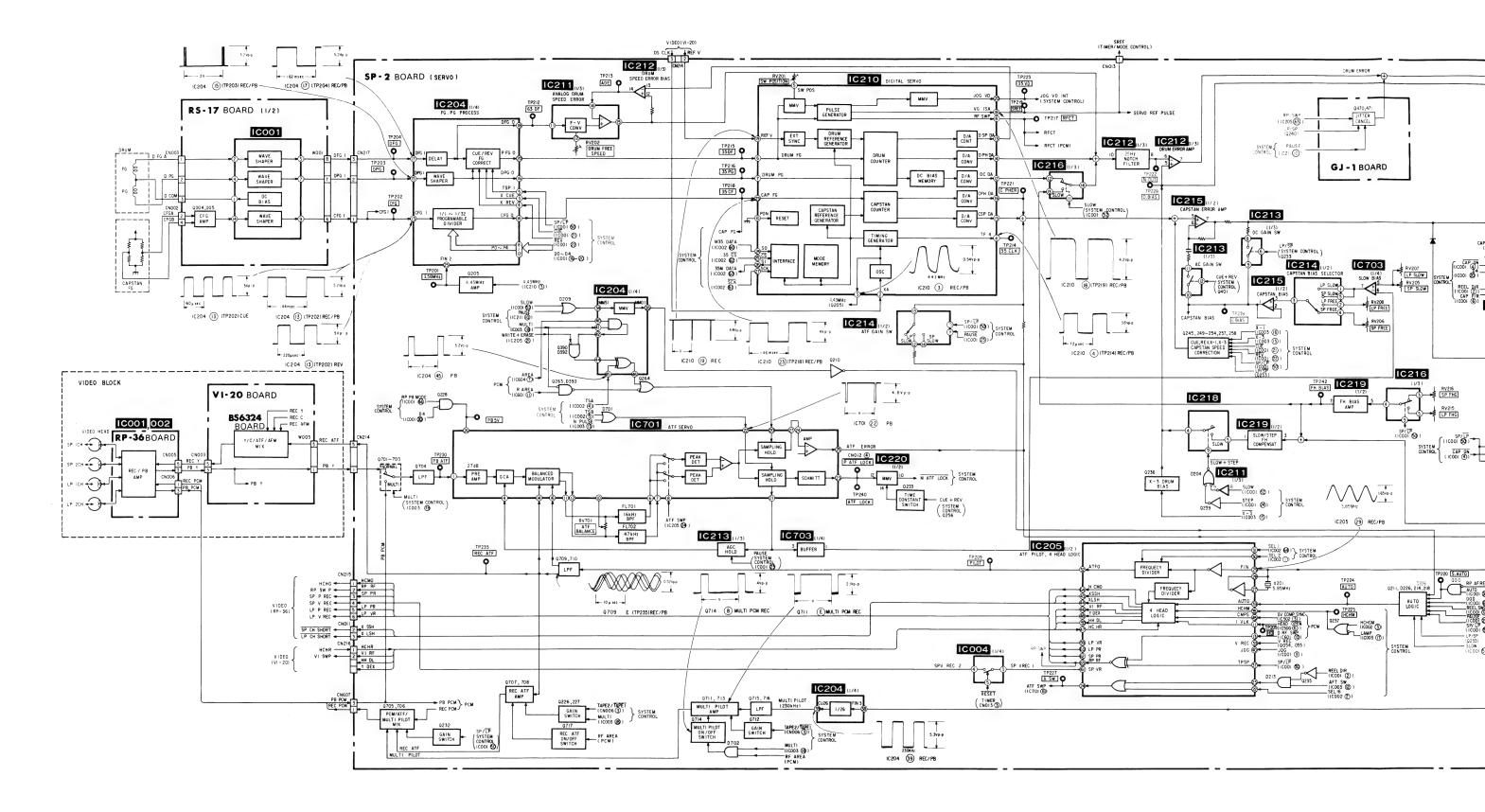


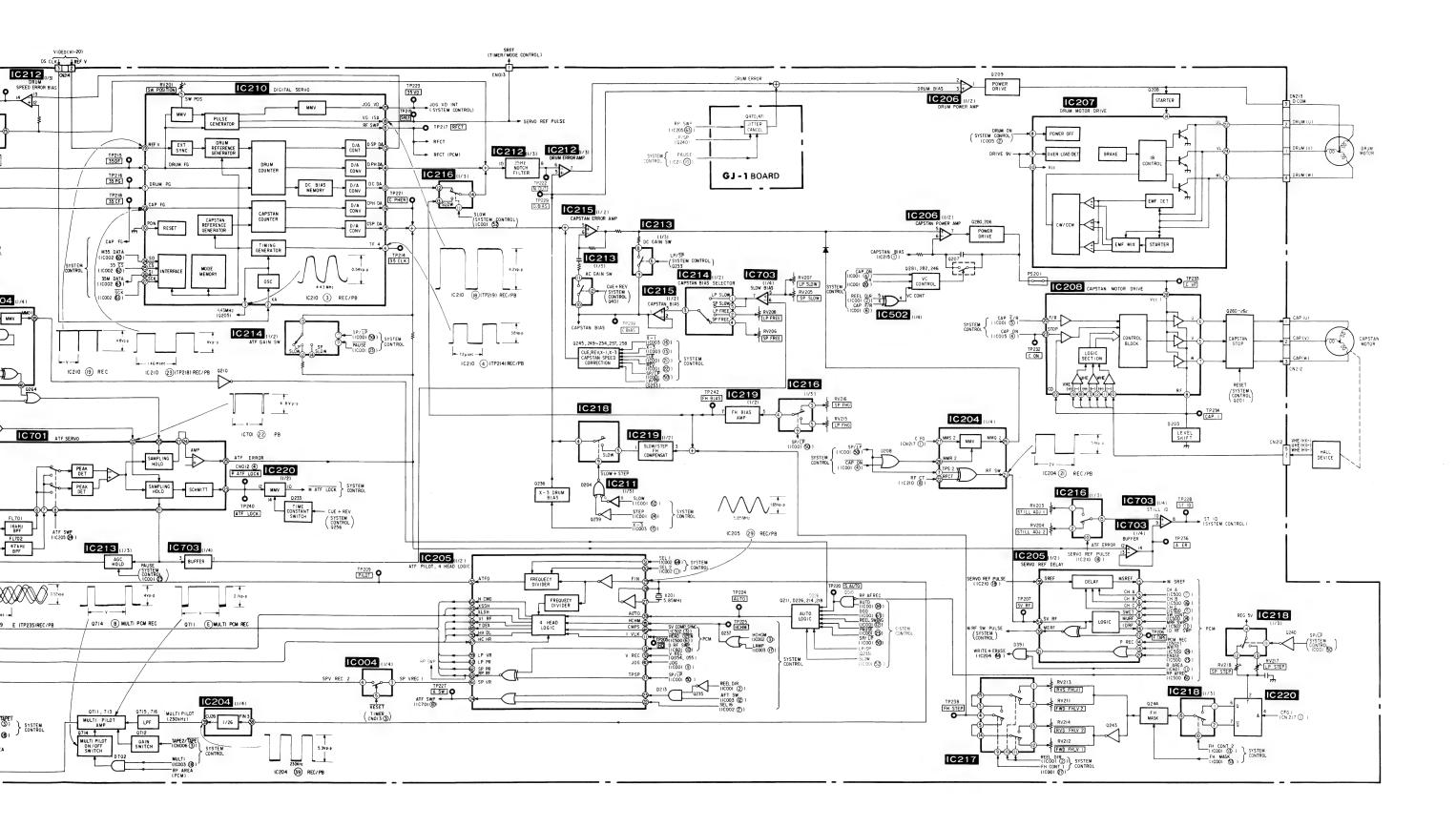
3-4. SECAM/PAL CONVERSION BLOCK DIAGRAM





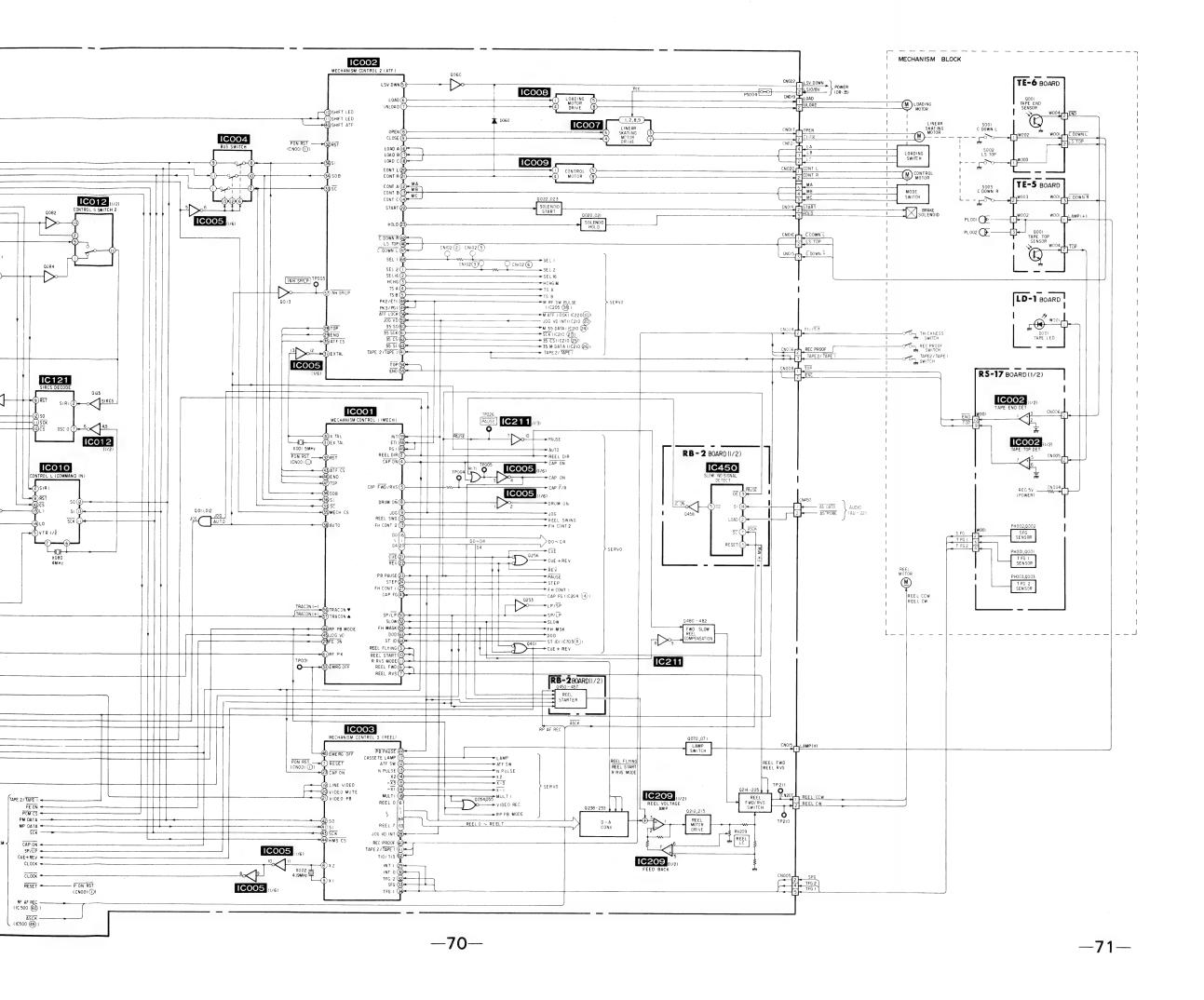
3-5. SERVO BLOCK DIAGRAM





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3-7. SYSTEM CONTROL — REC PAUSE BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	PB	РВ	× 1	_ × 1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.		11.244	OLANON	CLANOII	1120	PAUSE	ALTIE	PAUSE	, ,	PAUSE	^ •	_ ^ .	^*	- ^2	~3	_ ~ 3	1/10)	-1/10)	COL	, REV
RP PB MODE	0	IC001 44 Pin	Н	Н	н	н	н	L	L	н	Н	Н	н	Н	н	н	н	Н	Н	н	Н	Н	Н
VIDEO REC	0	Q054 collector	L	L	L	L	L	Н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
RP AF REC	0	IC500 60 Pin	L	L	L	L	L	L	L	Н	Н	L	L	L	L	L	L	L	L	L	L	L	L
н снg	0	IC002 ③ Pin	*1	*1	*1	*1	*1	*1	*1	*1	*2	*1	*2	*1	*2	*2	*2	*2	*2	*2	*2	*2	*2
M FE ON	0	IC500 ① Pin	Н	Н	Н	Н	н	*3	н	*2	Н	Н	Н	н	Н	Н	Н	Н	Н	Н	Н	Н	Н

3-8. SYSTEM CONTROL — VIDEO BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC	.PB	PB	× 1	_ × 1	× 2	_×2	× 9	- × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	I/O	Pin No.	0.0.						PAUSE		PAUSE		PAUSE				_			1/10)	-1/10)	301	
VIDEO PB	0	IC003 ② Pin	L	L	L	L	L	L	L	Н	Н	Н	Н	Н	Н	Н	н	н	н	Н	н	Н	Н
VIDEO MUTE	0	IC003 @ Pin	L	L	L	Н	Н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LINE VIDEO	0	IC003 (19) Pin	Be caus	ed by input	t select																·		
JOG	0	IC001 9 Pin	L	L	L	L	L	L	L	н	Н	L	н	н	Н	н	н	Н	Н	Н	Н	Н	Н
DOD	0	IC001 63 Pin	L	L	L	L	L	L	L			L											
TAPE 2/TAPE 1	0	CN009 4 Pin	Be caus	ed by cass	ette																		
SP/LP	0	IC001 50 Pin	Be caus	ed by Tape	Speed Sel	ect																	
JOG VD	0	IC001 45 Pin				NON				Y	ES	NON						YES					

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	PB	РВ	× 1	-×1	× 2	_ × 2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	I/O	Pin No.	0.0.		111200	OLANO!!	CEANON	1120	PAUSE	Ai iie	PAUSE	, ,	PAUSE	^•	_ ^ .	_ ^_	_ ^_	~ •		1/10)	-1/10)	002	,,,,,
CAPON	0	IC001 4 Pin	н	Н	н	L	L	L	Н	L	н	L	Н	L	L	L	L	L	L	*1	*1	L	L
CAP ON	0	IC005 4 Pin	L	L	L	н	Н	Н	L	н	L	Н	L	н	Н	н	Н	Н	н	*1	*1	н	н
CAP FWD/RVS	0	IC001 5 Pin	L	L	L	L	Н	L	L	L	L	L	L	L	н	L	Н	L	Н	*1	*1	L	н
D0-D4	0	IC001 16 ~ 20 Pin	"1"	"1"	"1"	*2	*2	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"2"	"2"	"9"	"7"	"1"	"1"	"9"	"7"
CUE	0	IC001 21 Pin	Н	н	н	н	Н	Н	Н	Н	Н	Н	Н	н	Н	Н	н	Н	н	н	н	L	Н
REV	0	IC001 22 Pin	Н	н	Н	н	н	н	Н	Н	Н	Н	Н	Н	н	н	н	Н	н	н	н	Н	L
PB PAUSE	0	IC001 (3) Pin	Н	Н	н	Н	Н	Н	Н	Н	L	Н	L	Н	н	н	н	Н	Н	L	L	н	Н
× 1	0	IC003 16 Pin	н	Н	Н	Н	Н	Н	Н	Н	Н	Н	н	Н	L	н	н	Н	н	н	н	Н	Н
	0	IC003 15 Pin	Н	Н	Н	Н	Н	Н	н	Н	Н	Н	н	Н	Н	н	L	Н	н	Н	Н	н	Н

D4 MSB
D0 LSB
(decimal notation)

^{*1} Be caused by Tape speed select
*2 Output pulse
*3 At "L" during the NORMAL or at output pulse during the MULTI

^{*1} Output pulse *2 PAL "18" — "17" NTSC "25" — "24"

3-10. SYSTEM CONTROL — DRUM MOTOR INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	PB	×1	-×1	× 2	-×2	× 9	-×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.							PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
DRUM ON	0	1C001 ® Pin	Н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
STEP	0	IC001 24 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
FH CONT1	0	IC001 ② Pin	L	L	L.	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
FH CONT2	0	IC001 (3) Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
SLOW	0	IC001 52 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Н	Н	L	L
FH MASK	0	IC001 53 Pin	н	Н	Н	н	Н	Н	н	Н	Н	Н	Н	н	Н	Н	н	Н	н	*1	*1	Н	Н

^{*1} Output pulse

3-11. SYSTEM CONTROL - REEL MOTOR INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	РВ	РВ	× 1	-×1	× 2	_ × 2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0101			OLAHOH	o Landin	n.Lo	PAUSE	A. 1120	PAUSE		PAUSE							1/10)	-1/10)		
REEL FWD	0	IC001 6 Pin	L	н	L	Н	L	Н	L	Н	L	Н	L	Н	L	н	L	н	L	*1	*1	Н	L
REEL RVS	0	IC001 7 Pin	L	L	Н	L	н	L	L	L	L	L	L	L	Н	L	Н	L	Н	*1	*1	L	Н
DOD	0	IC001 63 Pin	H/L	L	н	L	н	L	Н	Н	L	L	H/L	L	Н	L	н	Н	н	L	Н	Н	Н
REEL DIR	0	IC001 ② Pin	H/L	L	н	L	н	L	Н	L	L	L	H/L	L	н	L	Н	L	Н	L	Н	L	Н
REEL FLYING	0	IC001 ③ Pin	L	L	L	L	L	L	L	L	L	L	L	· L	L	L	L	L	L	L	L	L	L
REEL START	0	IC001 10 Pin	н	н	н	н	Н	н	Н	н	н	Н	Н	Н	Н	н	Н	Н	н	Н	Н	н	н
R RVS MODE	0	IC001 (1) Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REEL SWG	0	IC001 12 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REEL 0~7	0	IC003 ① ~ ⑥, ⑥, ֎ Pin	"70"	"96"	"96"	"A6"	"9C"	"54"	"54"	"54"	"54"	"54"	"70"	"54"	*2	"70"	*2	*3	*3	"70"	*4	*3	*3

REEL 7 MSB REEL 0 LSB (BCD Code)

ATF SERVO BLOCK INTERFACE 3-12 SYSTEM CONTROL -

-75-

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	PB PAUSE	× 1	_ × 1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.						PAUSE		PAUSE		PAUSE		and the second					1/10)	-1/10)		
ATF SW	0	IC003 12 Pin	L	L	L	L	L	L	L	L	*1	L	*1	L	L	L	L	L,	L	*1	*1	L	L
SEL16	0	IC002 ② Pin	L	L	L	L	L	*2	L	*2	L	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
TSA	0	IC002 4 Pin	L	L	L	Н	н	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
TSB	0	IC002 ⑤ Pin	L	L	L	L	L	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
MULTI	0	1C003 ® Pin	Be cause	ed by NORI	MAL/MULT	TI select swit	ch and Tape	state															
N PULSE	0	IC003 (3) Pin	L	L	L	L	L	L	L	L	*1	L	*1	L	L	L	L	L	L	*1	*1	L	L
TAPE 2/TAPE 1	0	Q227 B	Be cause	ed by CAS	SETTE																·		
RP PB MODE	0	IC001 4 Pin	Н	Н	Н	н	н	L	L	Н	н	Н	Н	Н	Н	Н	н	Н	н	н	н	Н	Н
SEL 1	0	IC002 6 Pin	Н	Н	н	Н	н	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
SEL 2	0	IC002 ① Pin	Н	Н	Н	Н	Н	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
M RF SW PULSE	ı	IC002 48, 49 Pin	H/L	***		1	FIELD syncl	hronized p	ulse										•			****	
JOG VD INT	1	IC001, 002 (9) Pin	L		***		Inpu	it pulse															

-76-

^{*1} Output pulse
*2 Be caused by NTSC/PAL, REMAIN
*3 Be caused by NTSC/PAL, SP/LP
*4 Be caused by NTSC/PAL

^{*1} Output pulse *2 Be caused by ATF sequence

3-13. SYSTEM CONTROL — STILL BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	PB PAUSE	×1	_ × 1	× 2	-×2	× 9	-×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.							PAUSE		PAUSE		FAUSE							1/10)	—1/10)		
RF PK	ı	IC001 6 Pin											Unsettled										
STID	ı	IC001 64 Pin				-							Unsettled										

3-14. SYSTEM CONTROL — HEAD CHANGE BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	РВ	×1	_ × 1	× 2	-×2	× 9	-×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0,0.	• • •	11211				PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
AUTO	0	IC001 38 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
LAMP	0	IC003 ① Pin	Н	Н	Н	Н	н	Н	Н	Н	Н	н	Н	Н	н	Н	н	н	Н	Н	н	Н	н
SP/LP	0	IC001 50 Pin	Be caus	ed by speed	serect																		

^{*1} Be caused by SP/LP

3-15. SYSTEM CONTROL — AND OTHERS BLOCK INTERFACE

SIGNAL	MODE I/O	Pin No.	STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	PB PAUSE	×1	-×1	× 2	× 2	× 9	-×9	SLOW (1/5, 1/10)	SLOW (-1/5, -1/10)	CUE	REV
M ATF LOCK	0	IC002 66 Pin		1									Unsettled										
CAP FG	1	IC001 40 Pin		Unsettled		*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
JOG	0	IC001 9 Pin	L	L	L	L	L	L	L	н	н	L	Н	Н	н	н	н	н	н	Н	н	Н	Н

^{*1} Input pulse

3-16. SYSTEM CONTROL - AFM AUDIO BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	РВ	PB	×1	× 1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	3101						PAUSE		PAUSE		PAUSE							1/10)	-1/10)		
IN SEL A	0	IC101 ⑤ Pin	Be caused by input select (TUNER/LINE/SIMUL and yes or no of microphone input)																				
IN SEL B	0	IC101 ⑥ Pin	Be cause	ed by input	select (TUN	NER/LINE/S	SIMUL and y	es or no of	microphone	e input)													
AF SEL	0	IC101 26 Pin																					
OUT SEL A	0	IC101 ③ Pin																					
OUT SEL B	0	IC101 ② Pin	Be cause	Be caused by output select (receive a signal or STEREO/MONO/BILINGAL of playback ID and monitor switch)																			
OUT SEL C	0	IC101 ① Pin																					
SP/LP	0	IC101 ② Pin	Be caused by speed select																				
AUDIO MUTE	0	IC101 @ Pin	Н	н	Н	L	L	Н	Н	Н	н	Н	L	н	н	н	н	Н	Н	Н	Н	Н	Н
AF PB/REC	0	IC101 25 Pin	L	L	L	н	н	L	L		L	Н	Н	н	Н	Н	н	Н	н	н	н	Н	н
REC MUTE	0	IC101 24 Pin	Н	Н	Н	Н	Н	L	н	L	н	Н	Н	н	н	н	Н	н	Н	Н	н	Н	н
AFM MUTE 2	0	IC101 23 Pin	*1	*1	*1	н	Н	*1	*1	Н	Н	*2	Н	н	н	*2	Н	н	н	н	н	н	Н
AFM MUTE 1	О	IC101 @ Pin	*1	*1	*1	н	Н	*1	*1	Н	Н	*2	Н	Н	Н	*2	Н	Н	Н	Н	н	н	н
×2	0	IC101 @ Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	Н	L	L	L	L	L	L	L

^{*1} Be caused by on the air classify of STEREO/MONO/BILINGUAL and monitor switch *2 Be caused by Tape ID and monitor switch

3-17. SYSTEM CONTROL — PCM AUDIO BLOCK INTERFACE

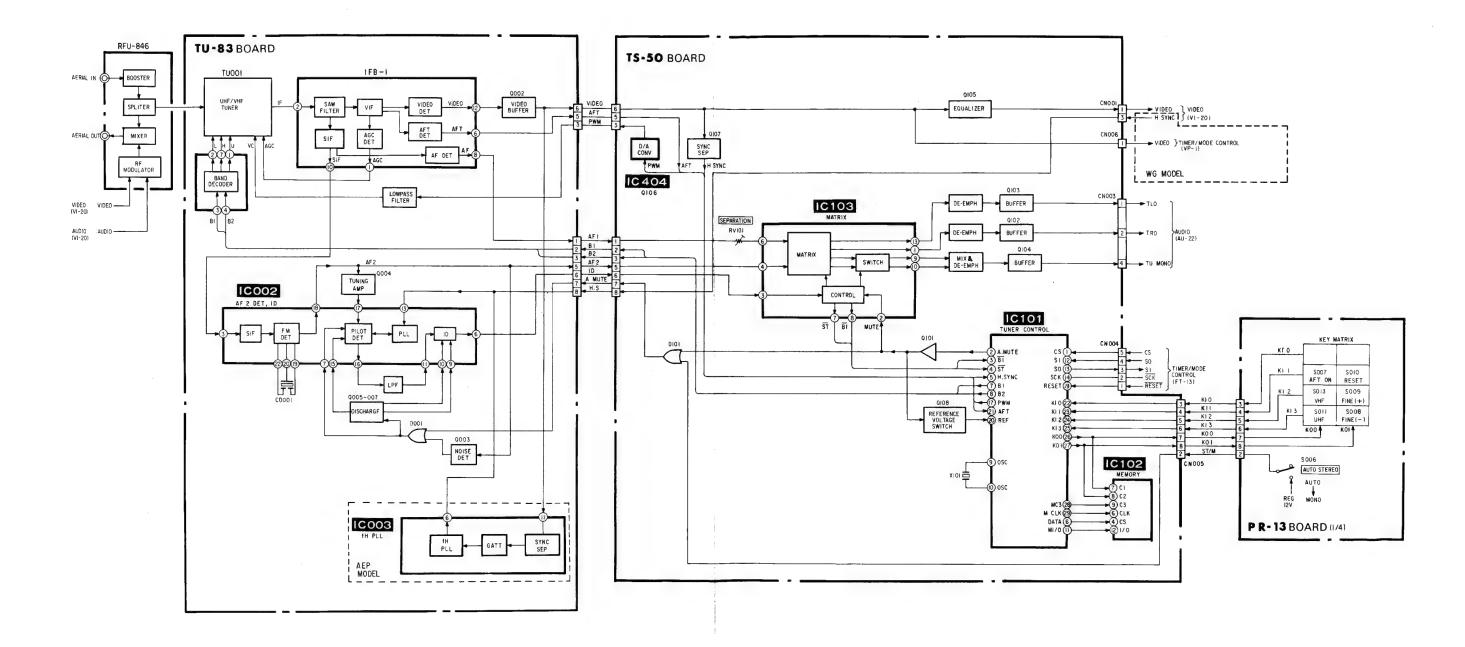
	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC	РВ	PB PAUSE	×1	_×1	× 2	-×2	× 9	-×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.		11211	02.111011			PAUSE		PAUSE		PAUSE							1/10)	-1/10)		
PCM ACT	1	IC500 46 Pin	L	L	L	Unsettled		Н	.L	н	L		Unsettled										
AF REC	0	IC500 59 Pin	L	L	L	L	L	L	L	н	L	L	L	L	L	L	L	L	L	L	L	L	L
PCM PB/REC	0	IC500 52 Pin	н.	Н	Н	н	Н	L	н	L	н	Н	Н	Н	н	н	Н	Н	Н	н	н	Н	Н
LOCK	0	IC500 @ Pin	L	L	L	Н	Н	Н	L	Н	н	Н	Н	Н	н	н	Н	Н	Н	н	н	н	Н
FOH	0	IC500 53 Pin	Н	Н	Н	L	Н	Н	Н	н	н	Н	• Н	Н	н	н	н	н	н	н	н	Н	н
FOL	0	IC500 (Pin	L	L	L	L	н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

3-18. SYSTEM CONTROL — MD BLOCK INTERFACE

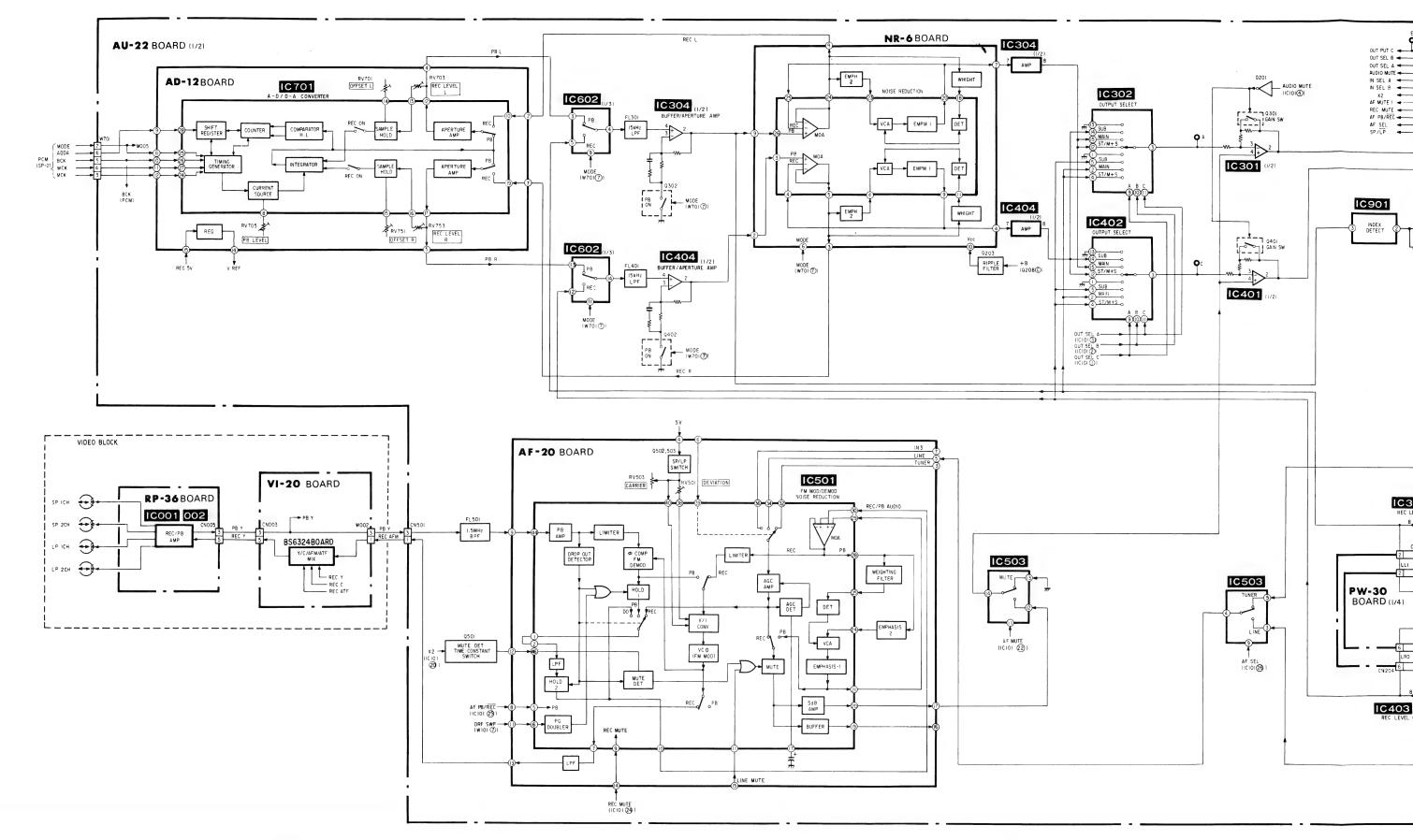
	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	PB	РВ	×1	-×1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.						PAUSE		PAUSE		PAUSE							1/10)	-1/10)		
LAMP	0	IC003 ① Pin	Н	н	н	Н	н	Н	Н	Н	н	Н	н	Н	Н	н	Н	Н	н	н	Н	Н	Н
CDOWNL	1	IC002 4 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CDOWNR	ı	IC002 42 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LSTOP	1	IC002 46 Pin	Н	н	н	н	н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	н	н	Н	Н	Н
OPEN	0	IC003 ® Pin	L	L	L	Ł	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CLOSE	0	IC002 (9) Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L L	L	L	L	L	L	L
LOAD	0	IC002 6 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
UNLOAD	0	IC002 7 Pin	L	Ĺ	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LA~LC	ı	IC003 16 17 18 Pin	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"
CONTL	0	IC002 @ Pin	L	L	L	L	L	L .	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CONTR	0	IC002 21 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
MA~MC	1	IC002 12 13 14 Pin	"3"	"6"	"6"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"
START	0	IC002 22 Pin	н	н	н	Н	н	Н	Н	Н	Н	Н	Н	Н	Н	н	н	Н	Н	н	н	Н	н
HOLD	0	IC002 22 Pin	н	L	L	н	Н	Н	н	н	н	Н	н	Н	н	н	н	Н	н	н	н	Н	Н
RECPROOF	1	IC003 60 Pin							•														
TAPE 2/TAPE 1	ı	IC003 61 Pin	Be cause	ed be Tape	state																		
T10/T13	1	IC003 @ Pin																					
TFG1	ı	IC003 30 34 Pin	Unsettled	*1	*1	*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TFG2	ı	IC003 32 Pin	Unsettled	*1	*1	*1	*1	*1	Unstettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TOP	I	IC002 54 Pin	Н	Н	Н	н	н	Н	н	н	н	Н	н	Н	Н	Н	Н	Н	н	н	н	н	Н
END	ı	IC002 55 Pin	*2	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SFG	ı	IC003 29 33 Pin	Unsettled	*1	*1	*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1

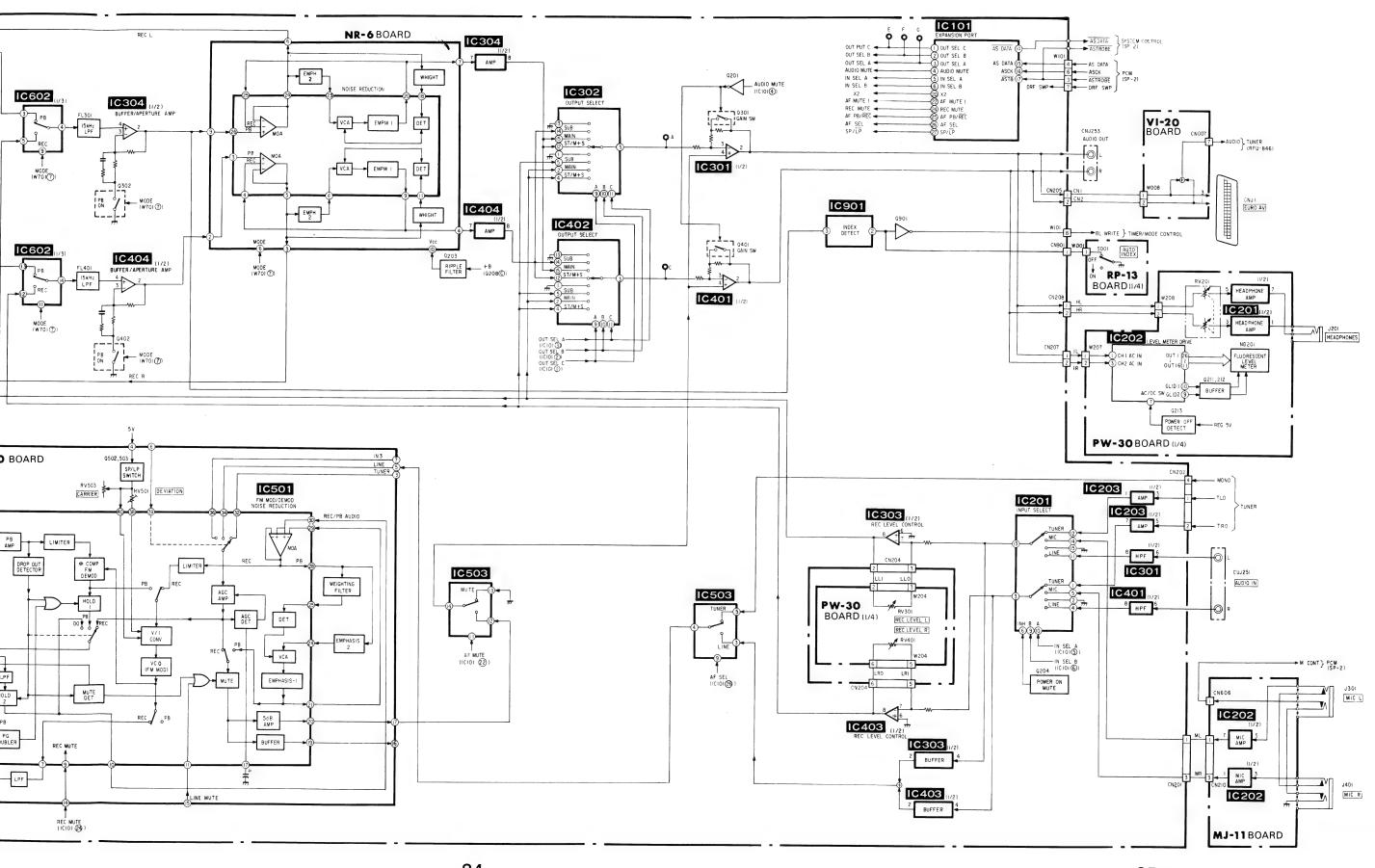
^{*1} The pulse is participate of reel rotations *2 Normal...at "H", but at "L" during the Tape end

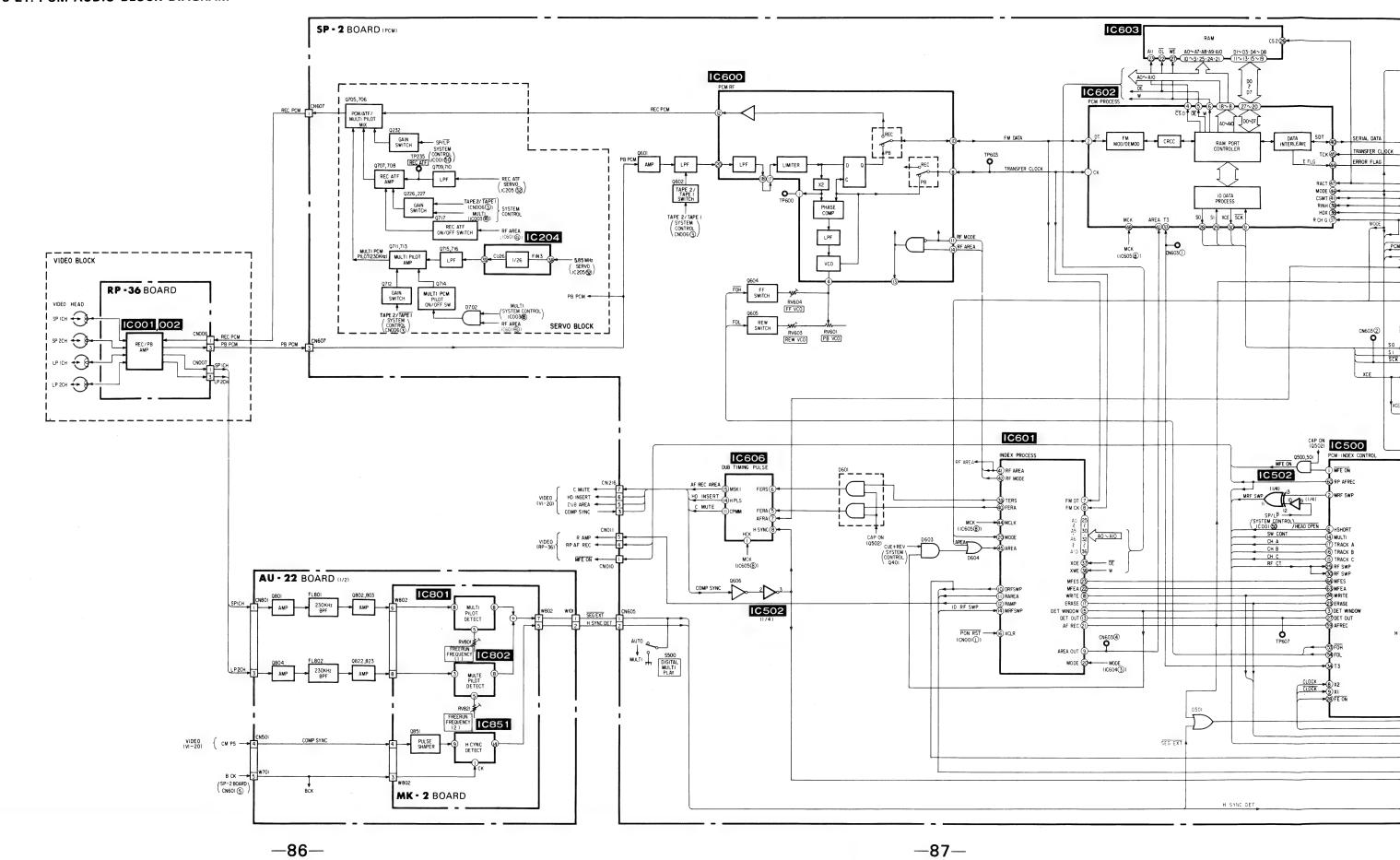
3-19. TUNER BLOCK DIAGRAM

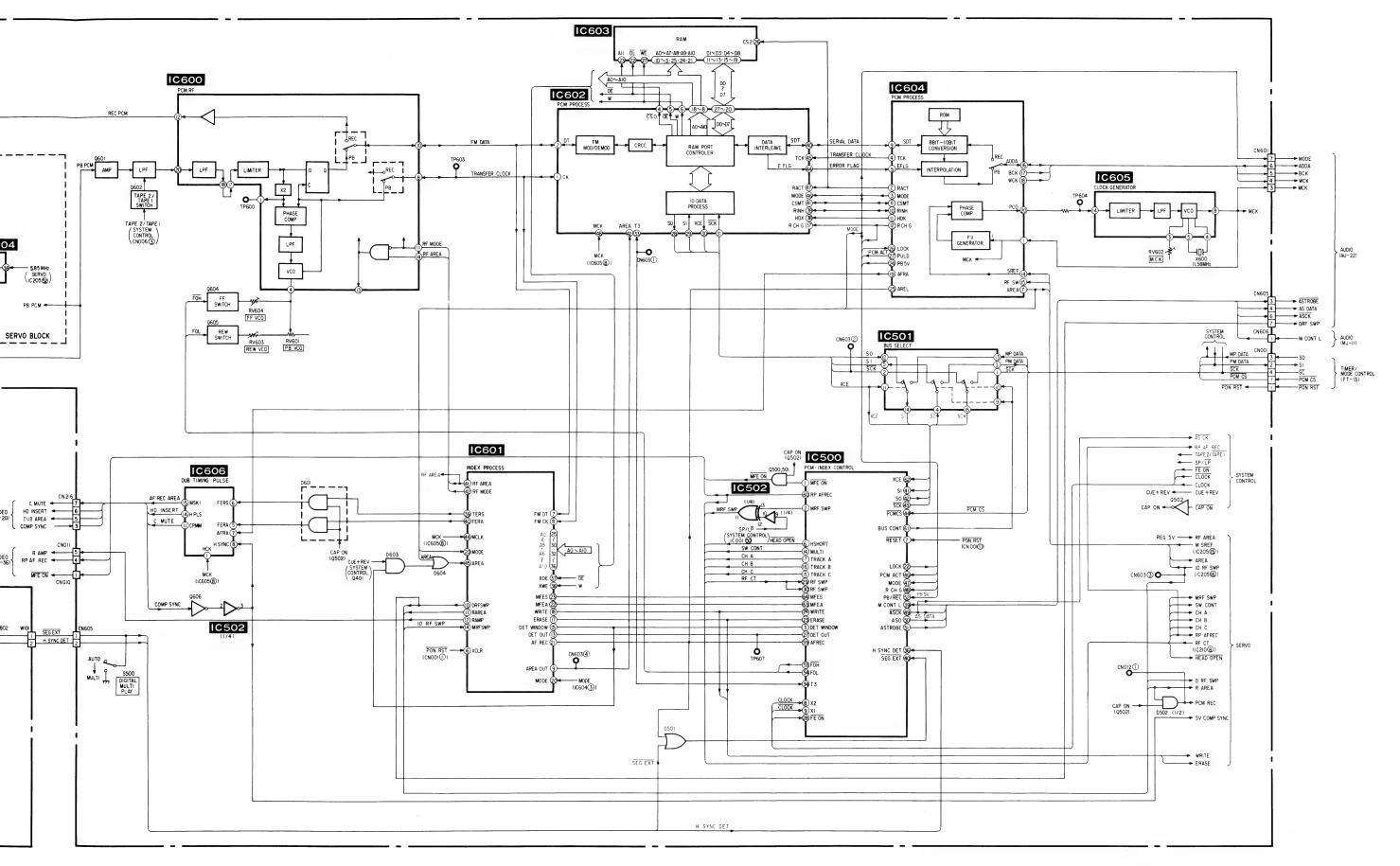


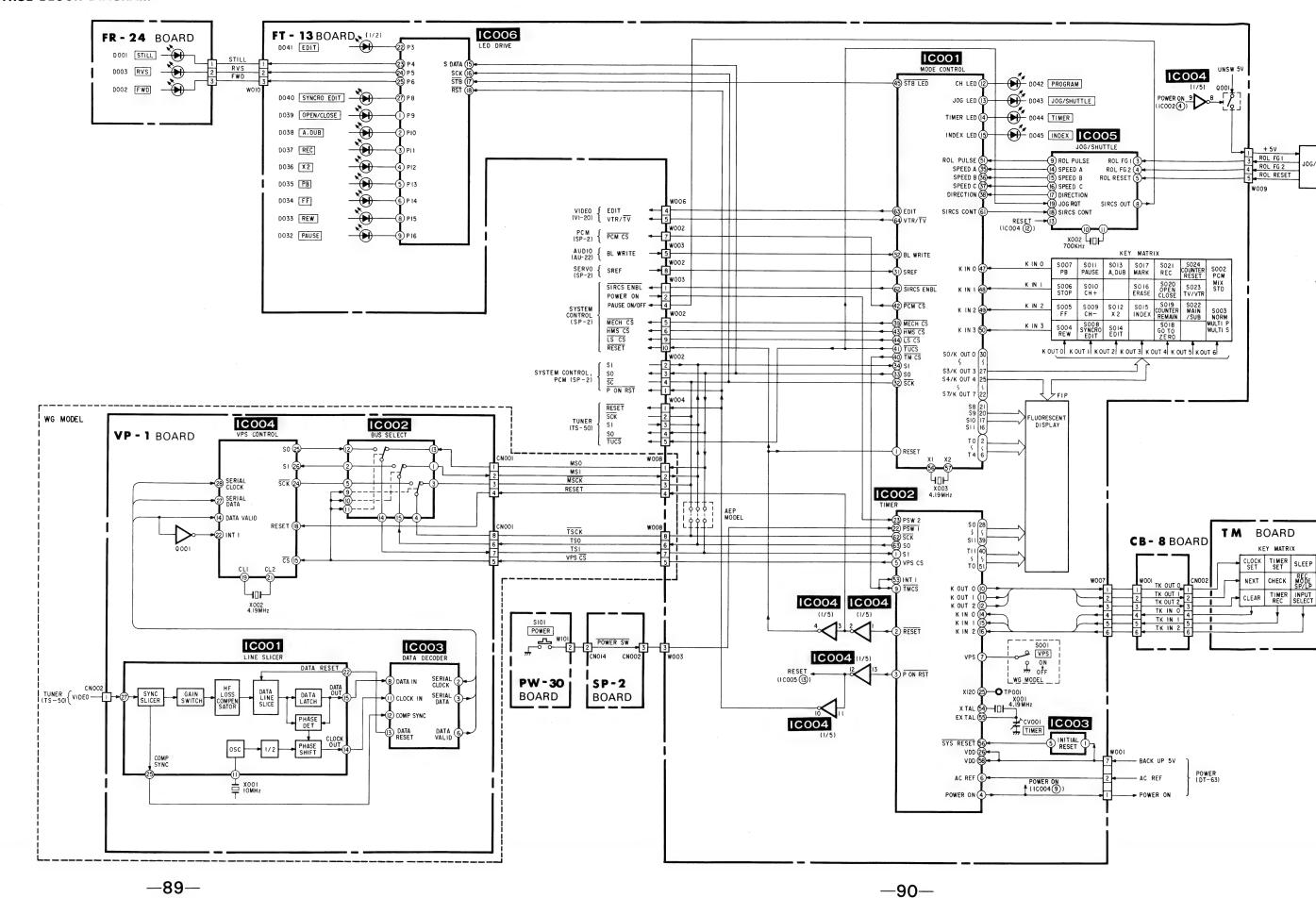
3-20. AUDIO BLOCK DIAGRAM

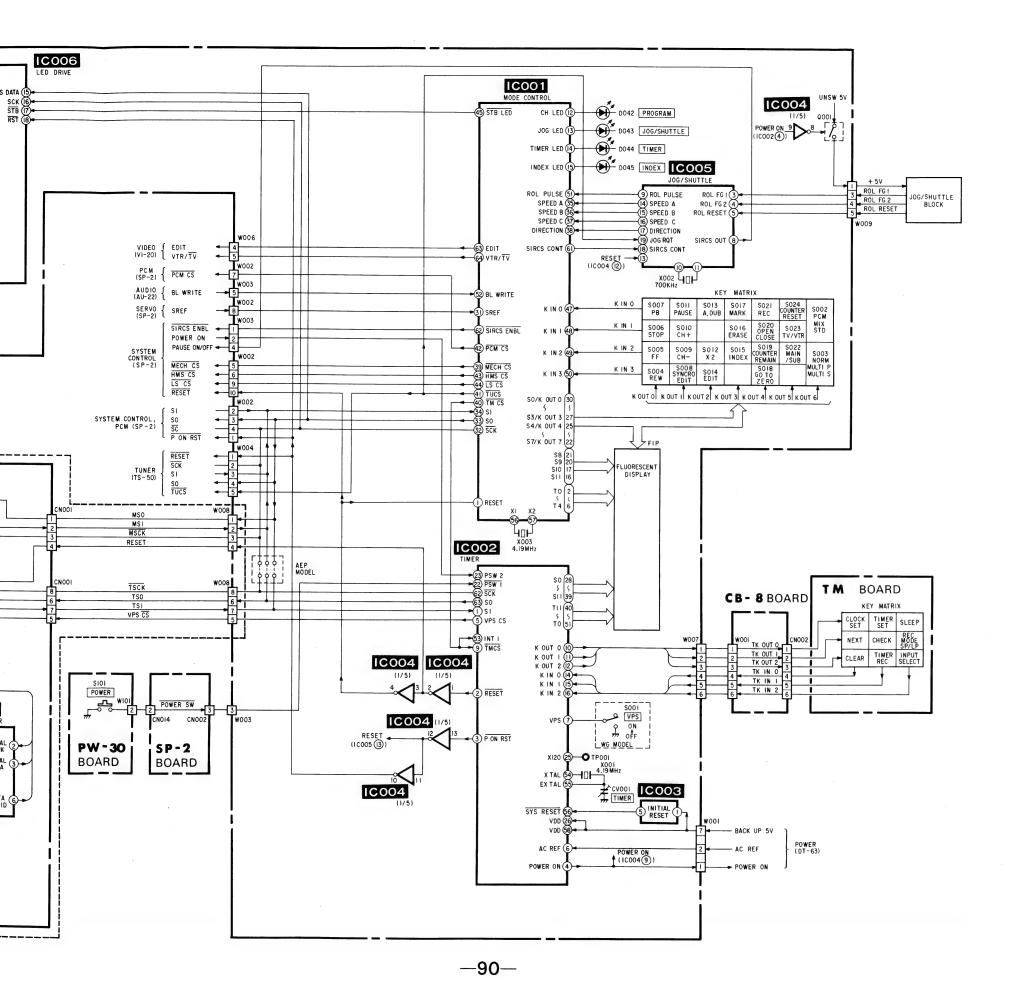




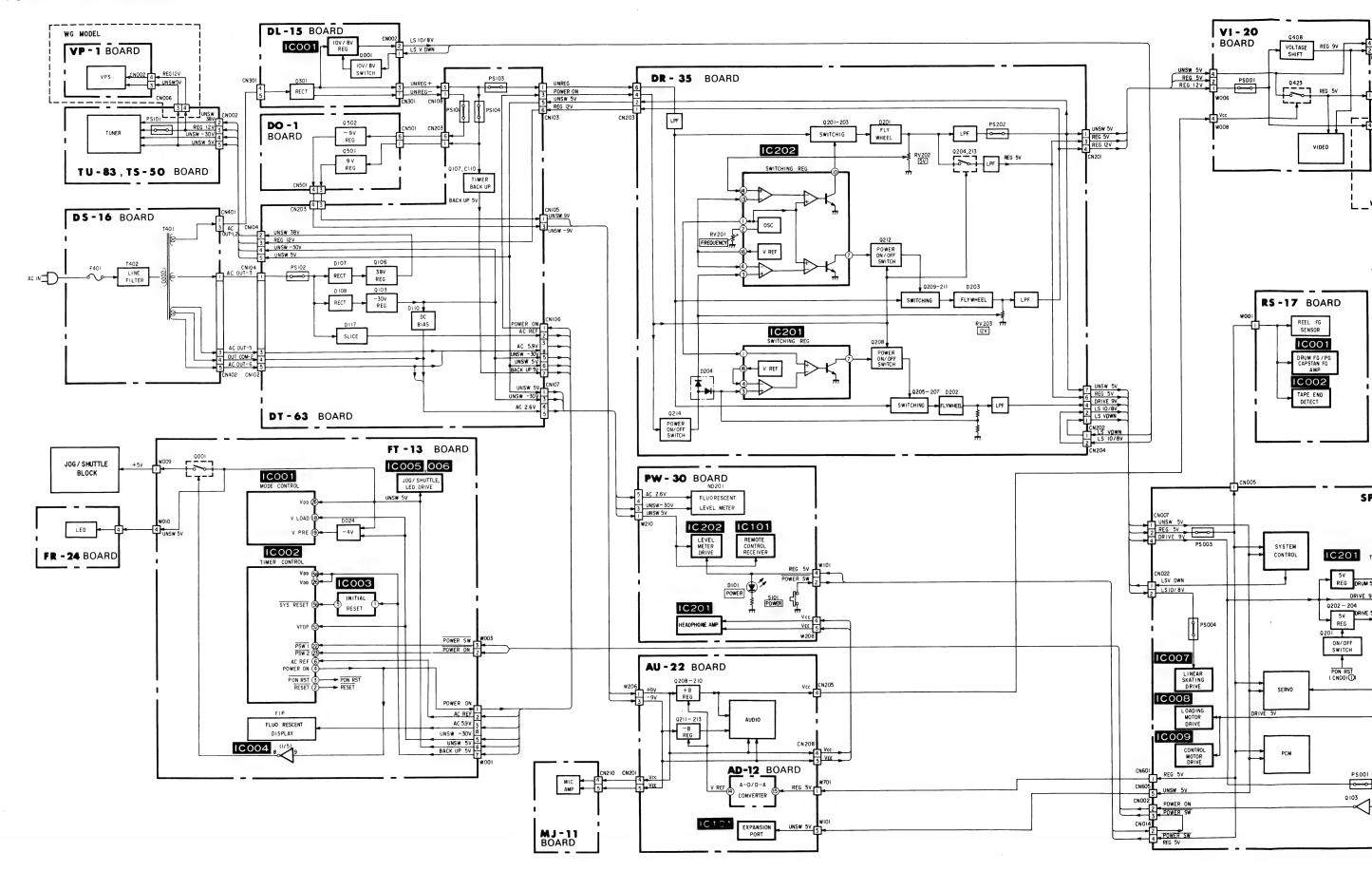


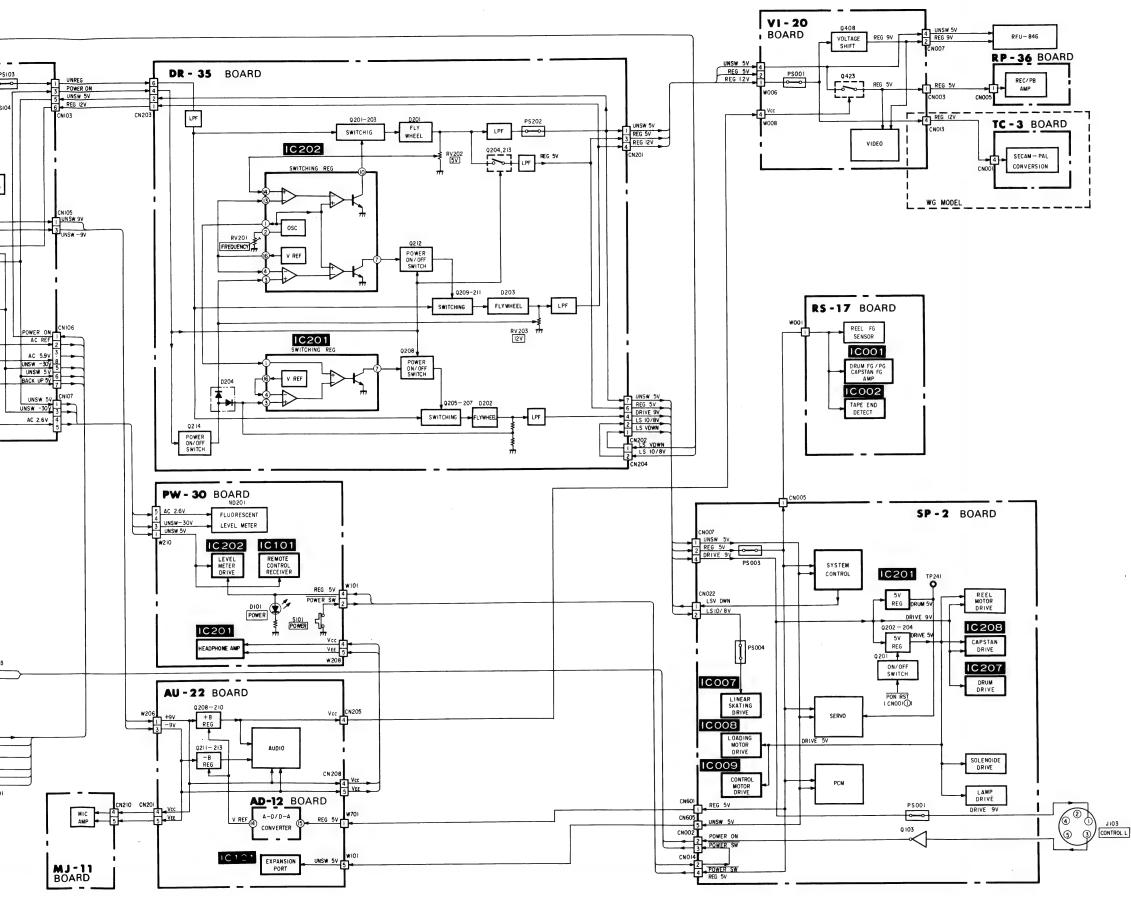


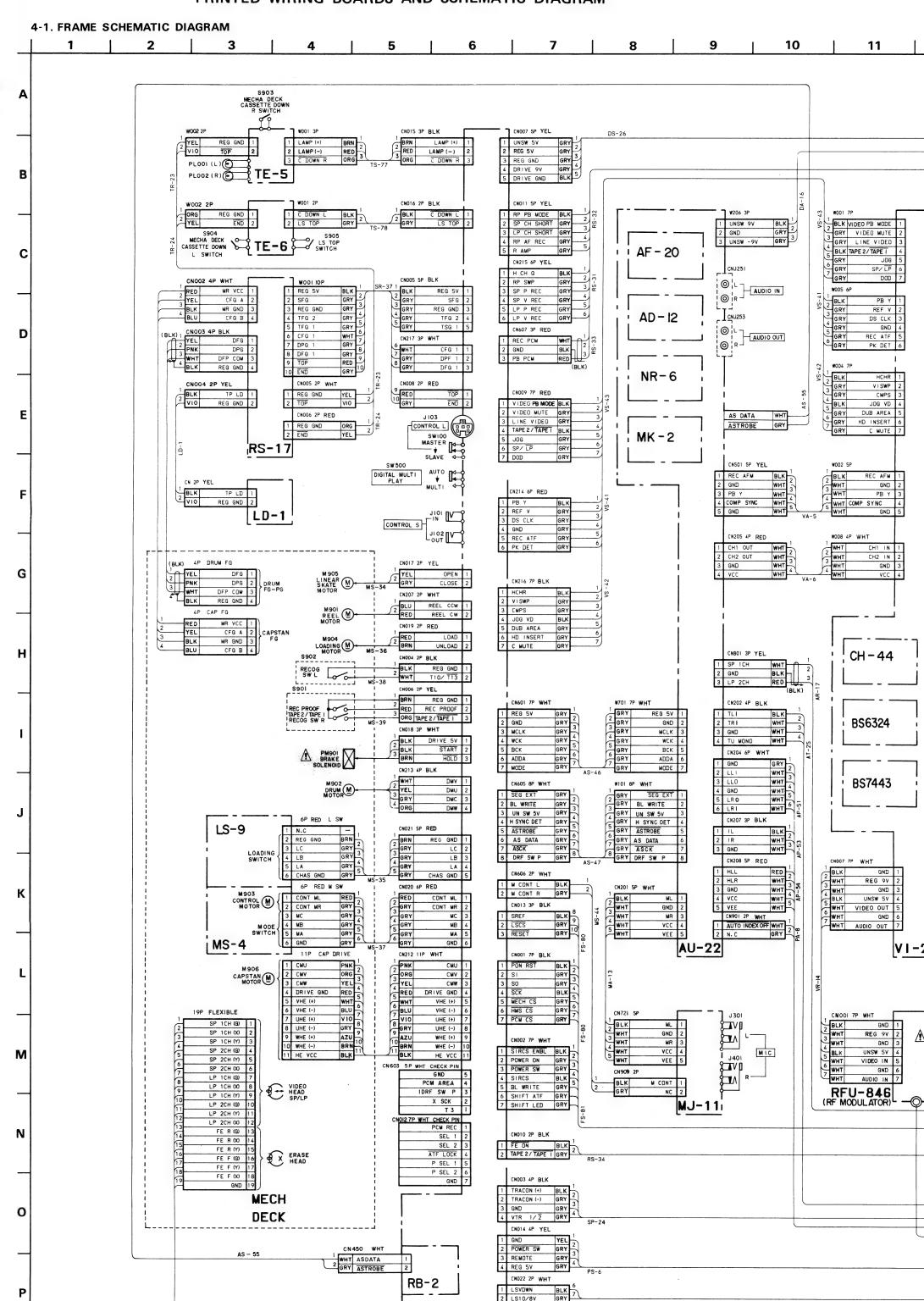


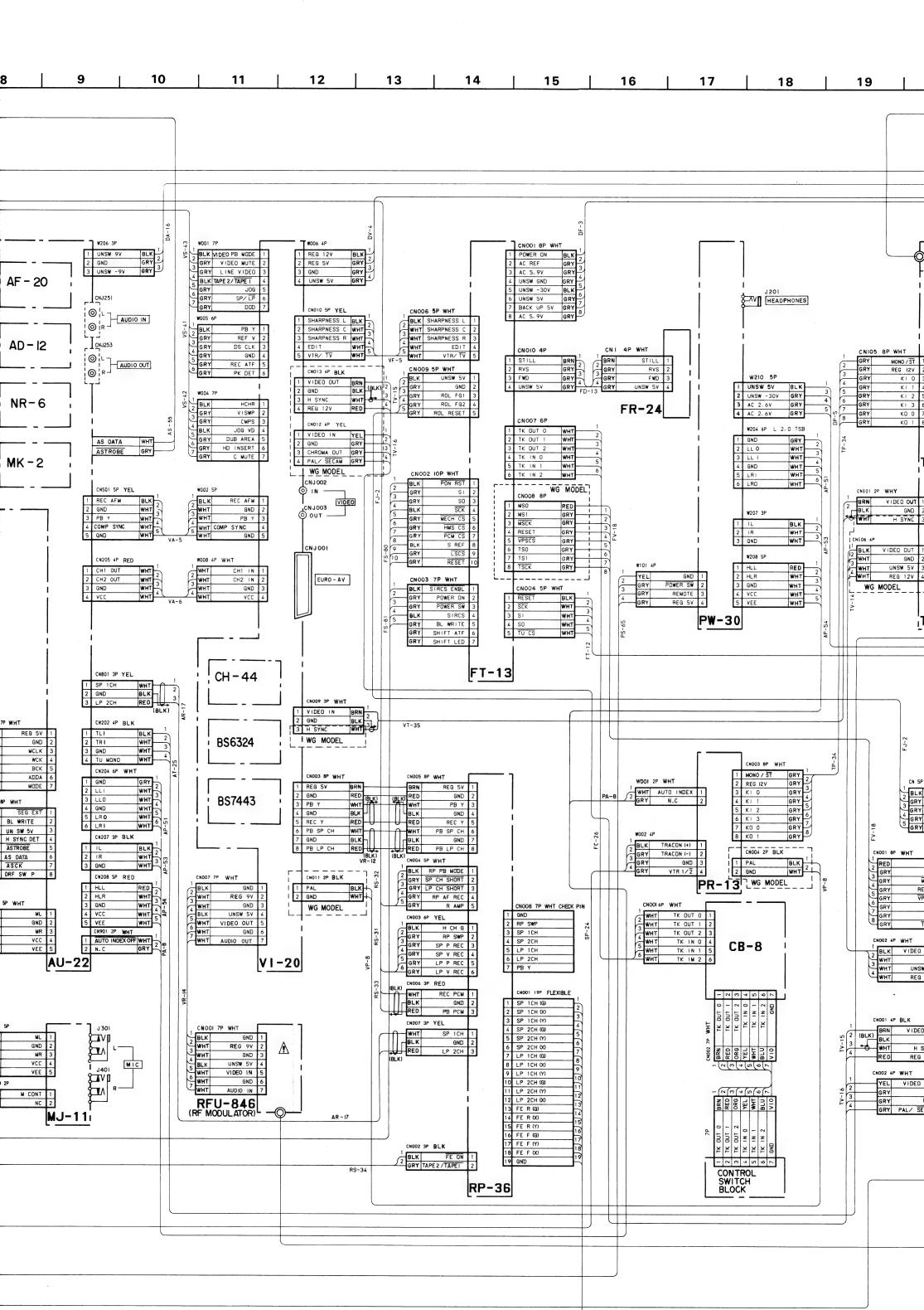


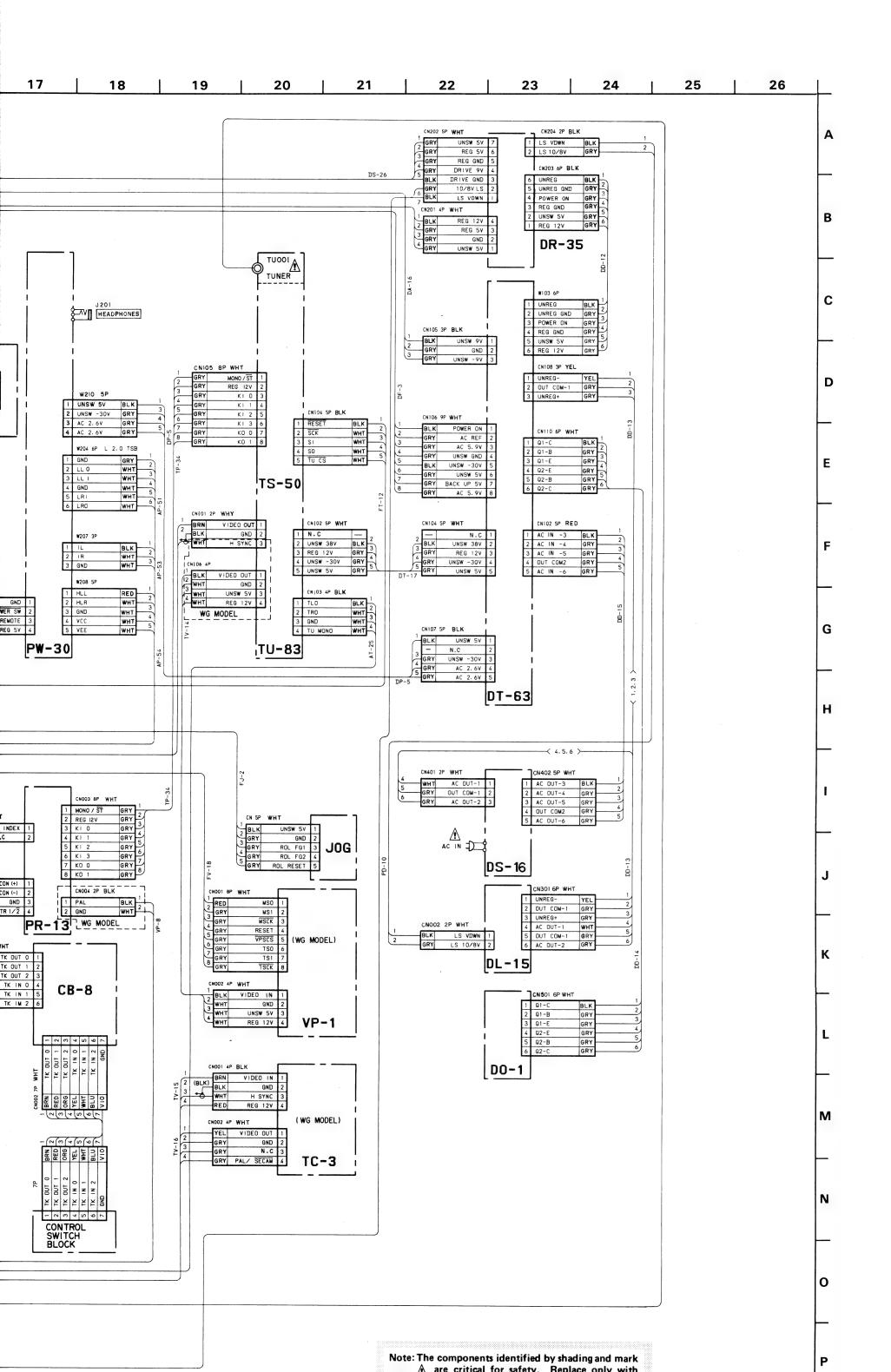
3-23. POWER BLOCK DIAGRAM











4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

RP-36(HEAD AMP/FLYING ERASE) PRINTED WIRING BOARD

-Ref. No. RP-36 BOARD: 1,000 series-

D101

IC002

Q101 Q102 Q103 Q104 Q105 Q201 Q202 Q203 Q301 Q302 Q303 Q304 Q307 Q308 Q402 Q403 Q404

RV101 RV102 RV201 RV202

Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- : Through hole.
- : Pattern from the side which enables seeing.
- Pattern of the rear side.
- B+ pattern from the side which enables seeing.
- Digital transistor (RP-36:Q103,Q105,Q203,Q302,Q303) transistor with resistors.

Refer to the RP-36 board schematic diagram for digital transistor

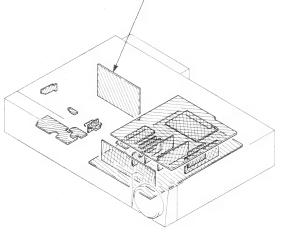
When indicating parts by reference number, please include the board name.

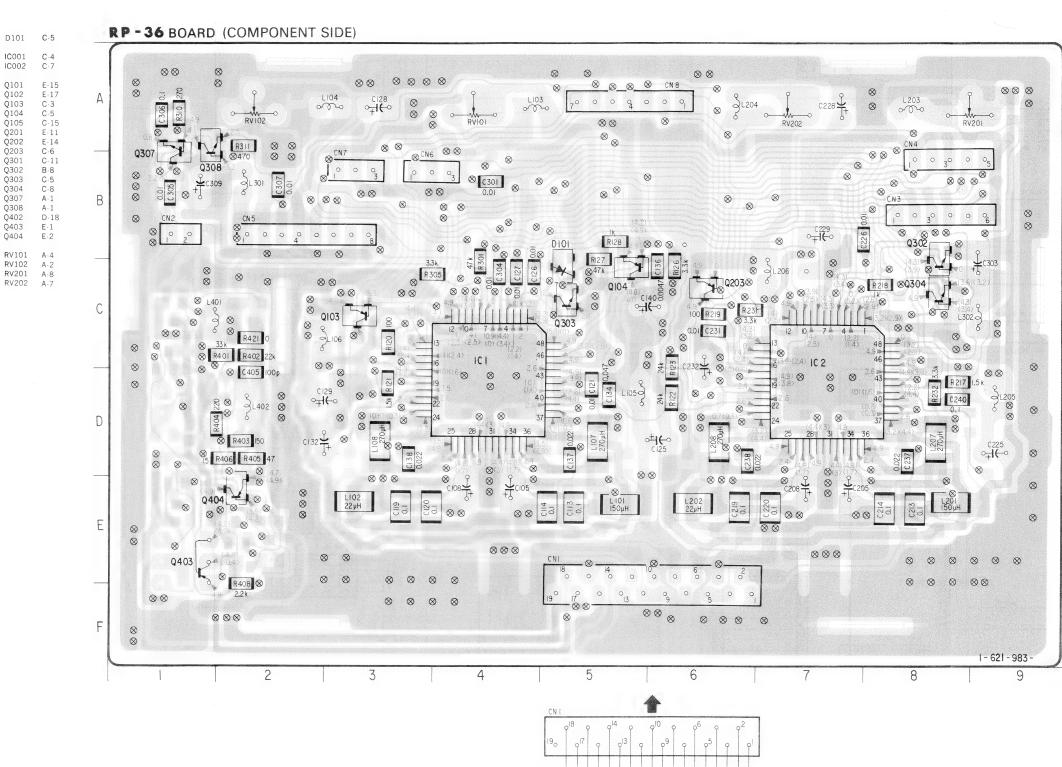
Caution:

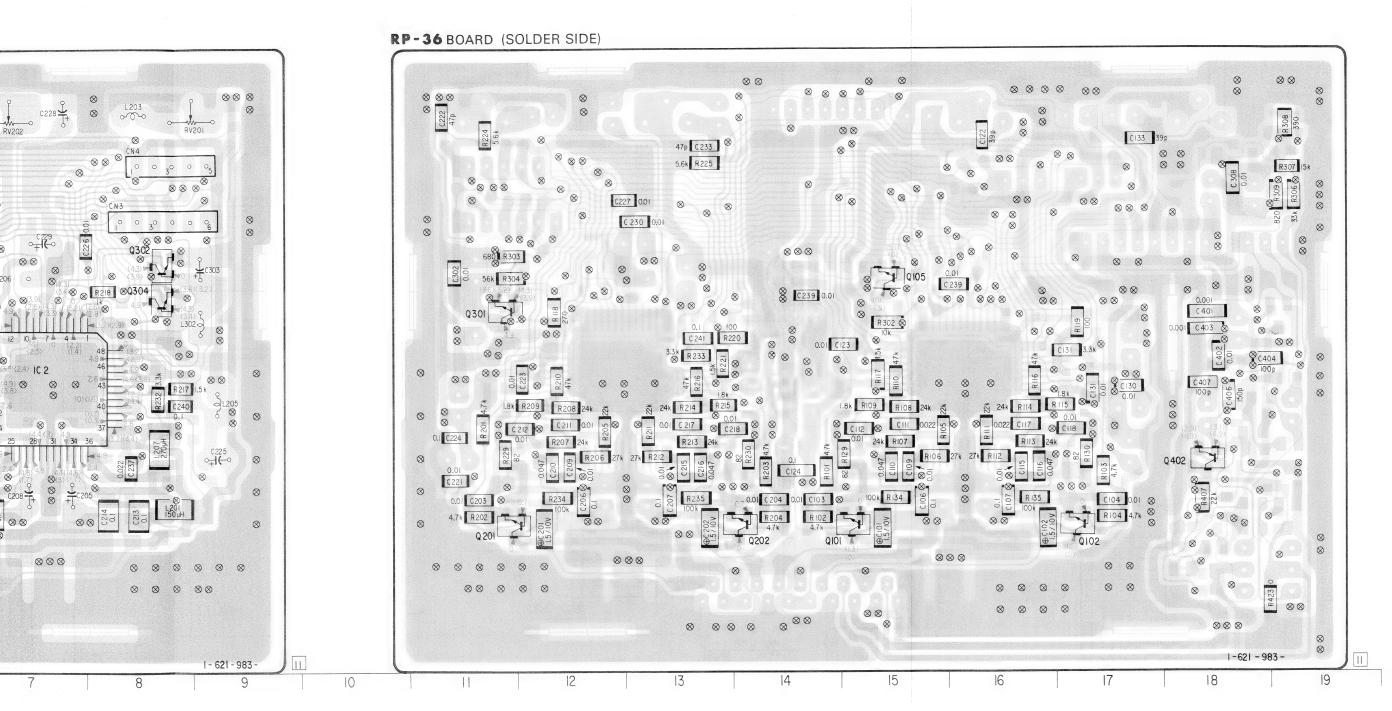
Pattern face side: Parts on the pattern face side seen from

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

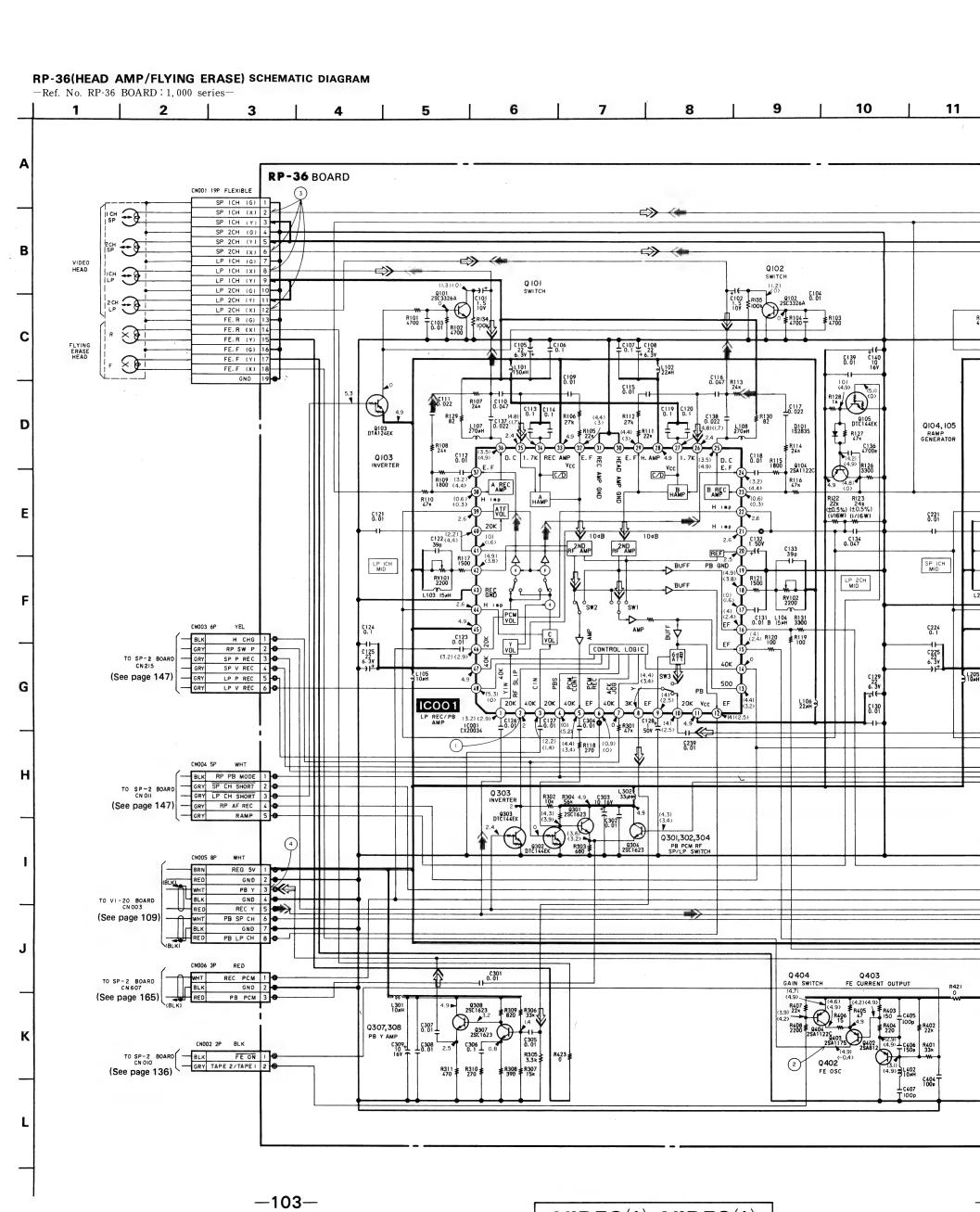


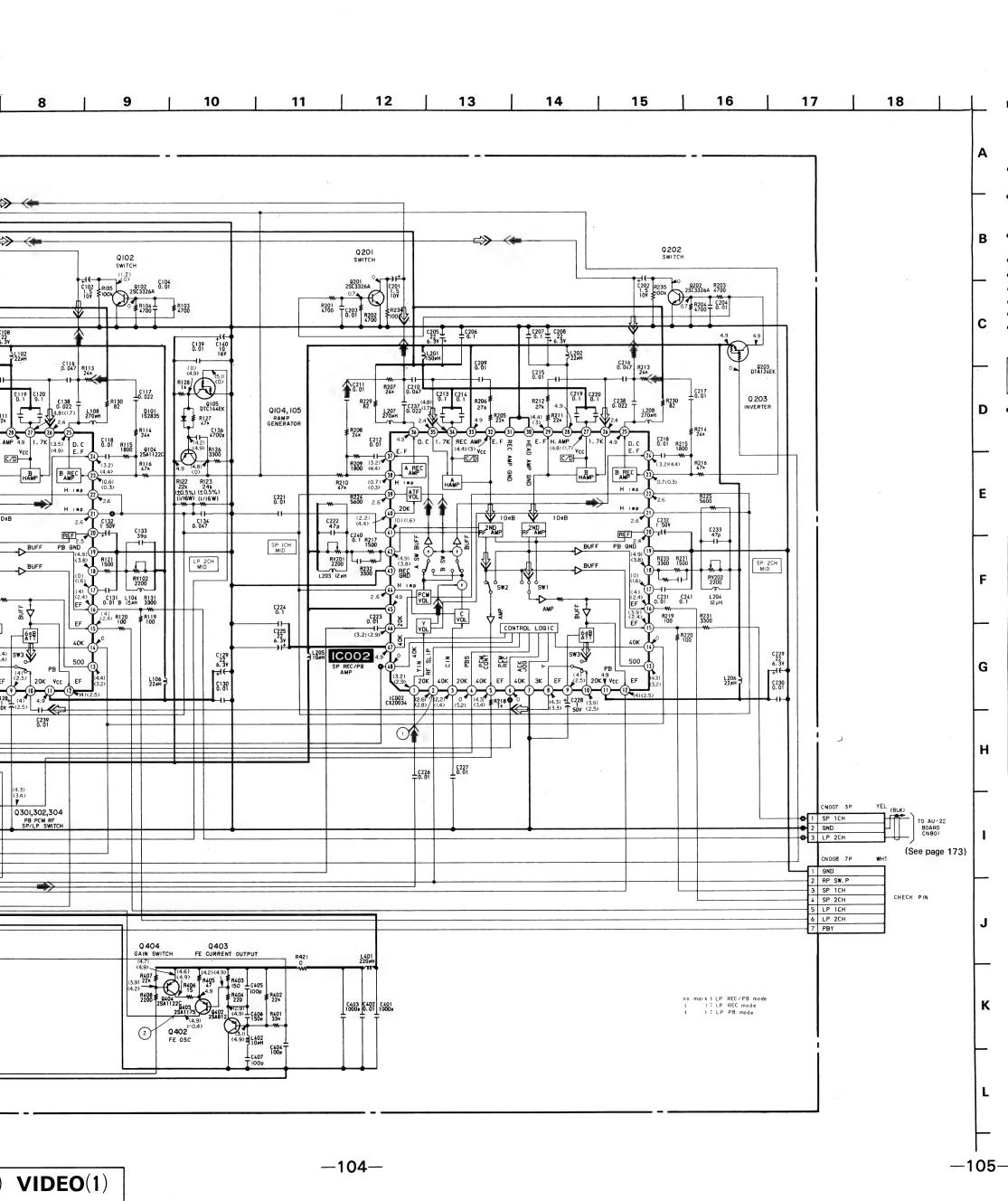


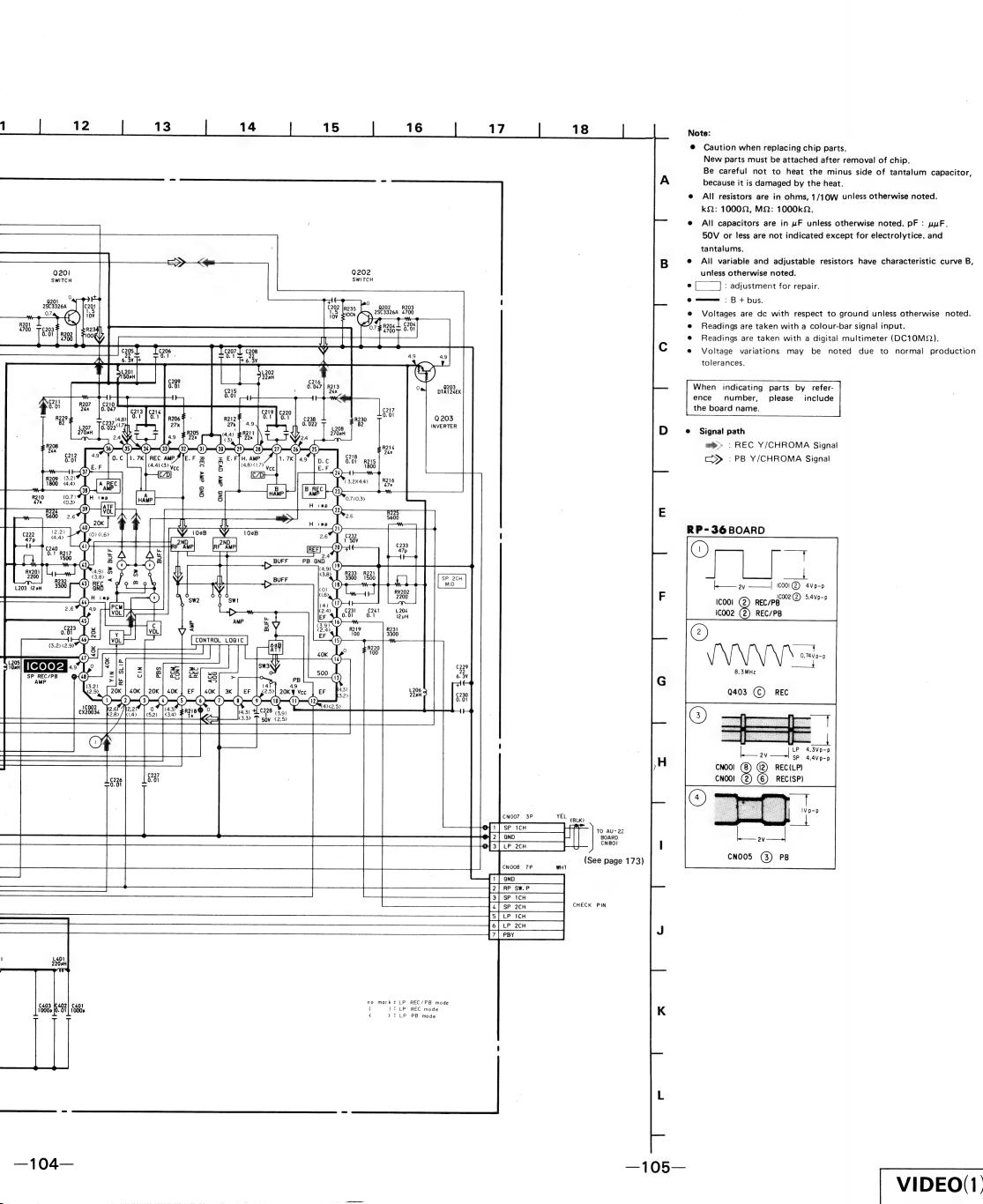




no mark: LP REC/PB r (): LP REC mode (): LP PB mode

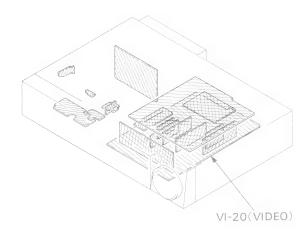






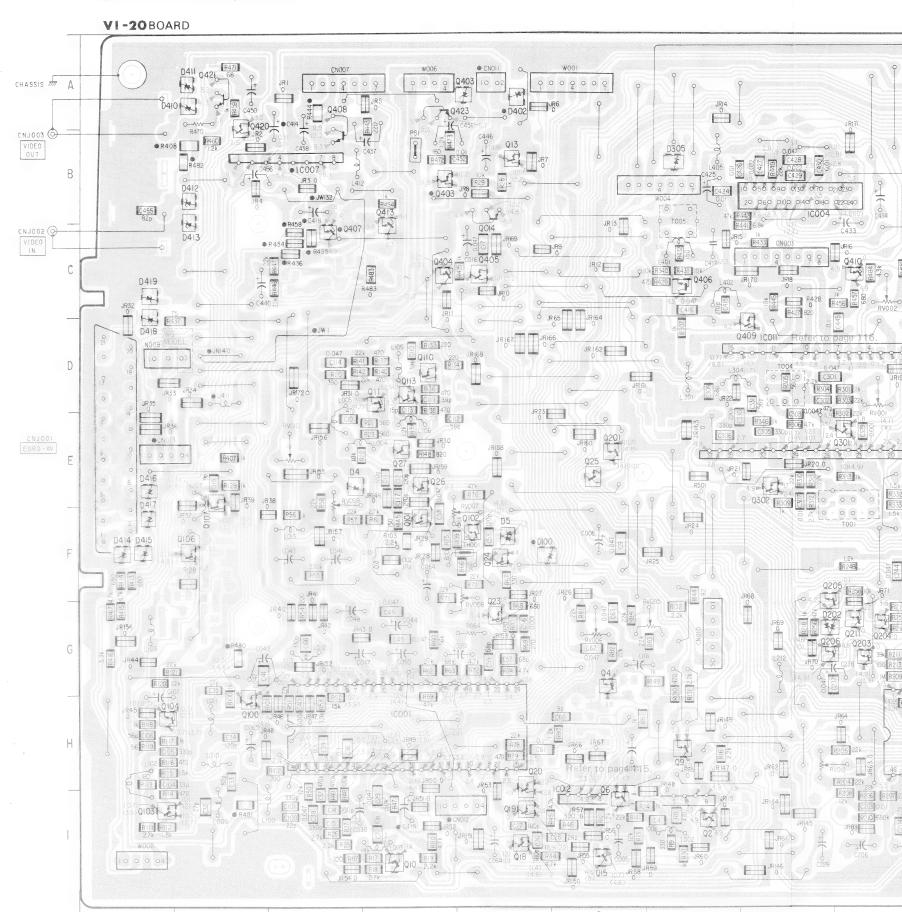
- — : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- soldering side.
- B+ Pattern.

When indicating parts by reference number, please include the board name.



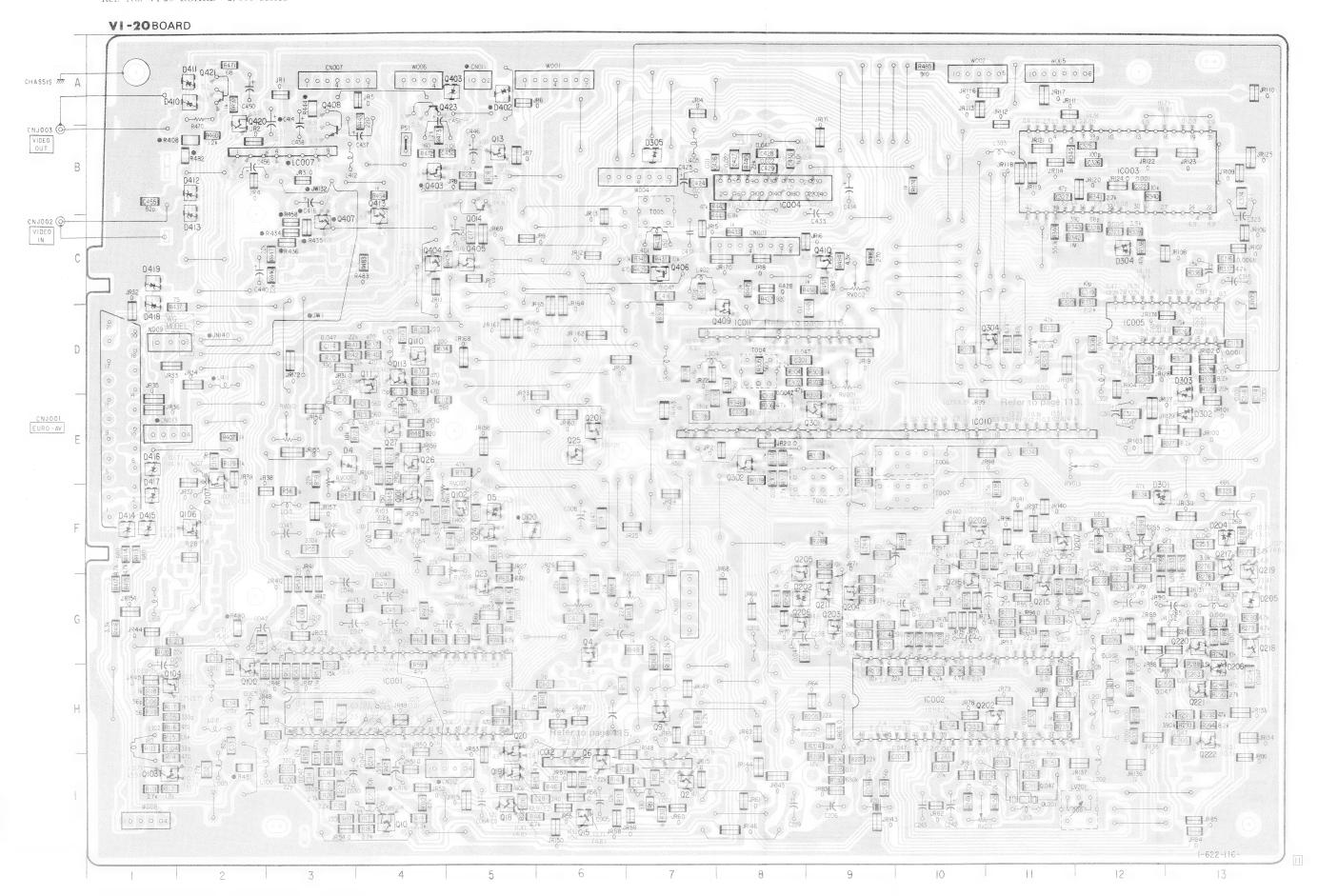
VI-20(VIDEO) PRINTED WIRING BOARD

-Ref. No. VI-20 BOARD: 2,000 series-



F-5 I-1 H-1 F-2 E-2 D-4 D-4 E-6 G-9 G-9 G-11 G-9 G-11 G-13 G-13 G-13

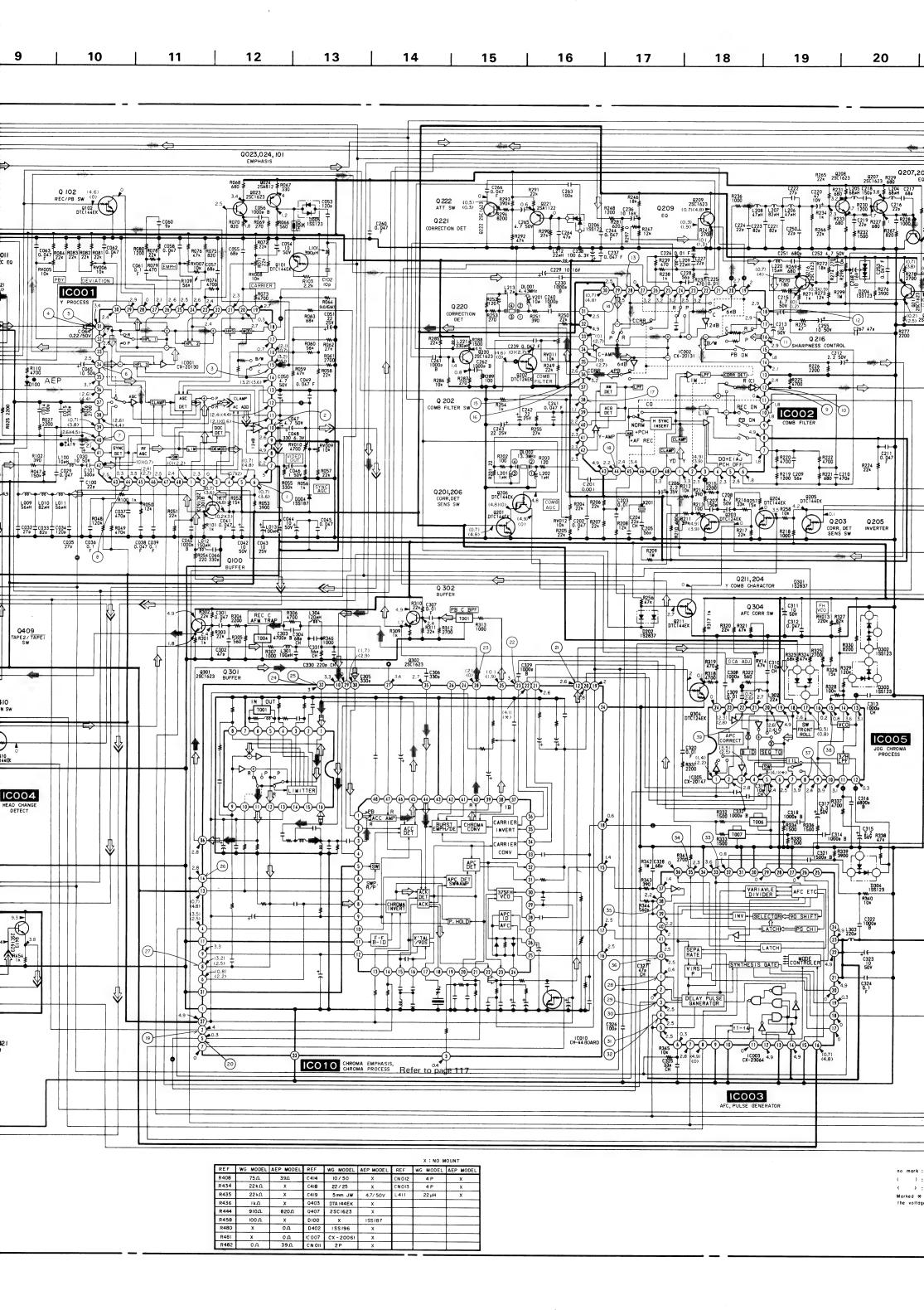
RV0005 G-7 RV0006 G-6 RV0007 F-4 RV0008 F-5 RV0009 E-3 RV0101 E-10 RV0112 H-8 RV013 E-11 RV014 D-11

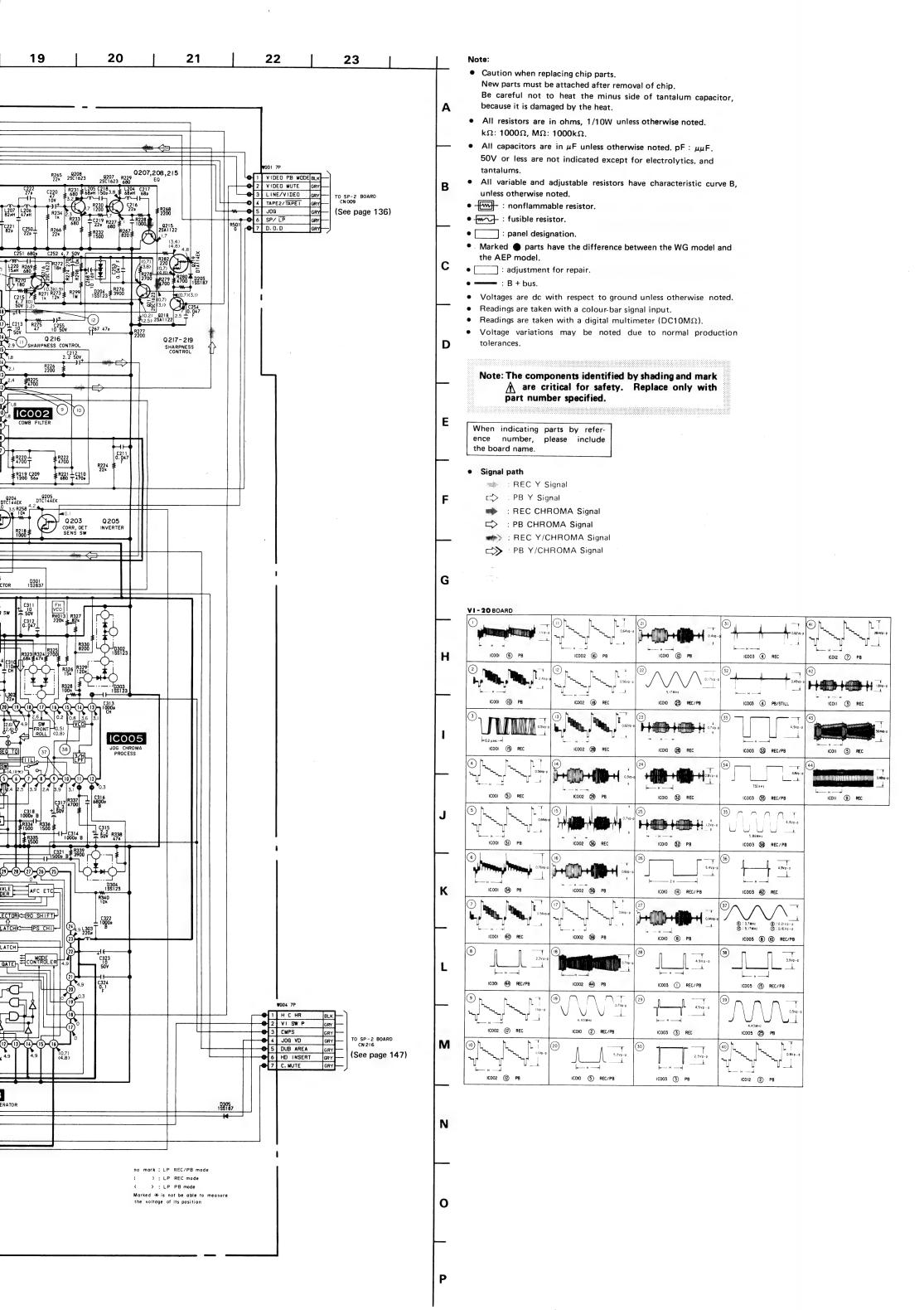


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-108-

Ρ





• O- : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

♦ ⊗ : Through hole.

• Pattern from the side which enables seeing.

: Pattern of the rear side.

: B+ pattern from the side which enables seeing.

• Digital transistor (BS7443:DT001,DT002,DT003,DT004,DT005 DT006, BS6324:DT001) transistor with resistors.

Refer to the BS7443,BS6324 boards schematic diagram for digital transistor.

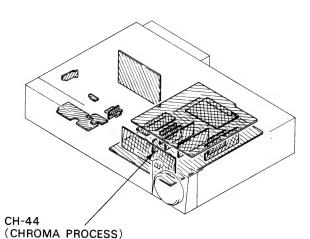
When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side)

the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

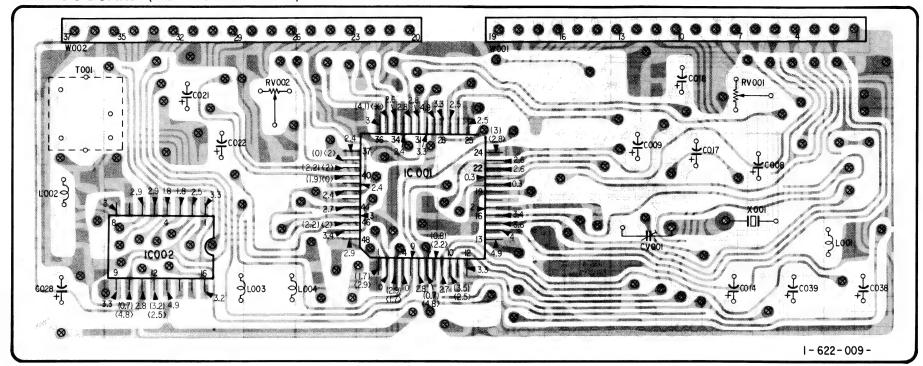


CH-44(CHROMA PROCESS), BS6324(MIX), BS7443(NOISE CANCEL) PRINTED WIRING BOARDS

-Ref. No. CH-44 BOARD: 3,000 series, BS6324 BOARD: 3,100 series, BS7443 BOARD: 3,200 series

IC010

CH-44 BOARD (COMPONENT SIDE)



no mark: LP REC/PB mode (): LP REC mode

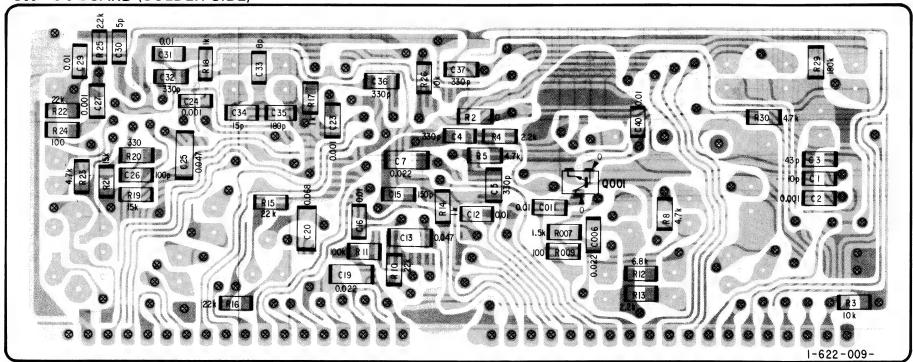
(): LP PB mode

Markd X is not able to measure the voltage of its position

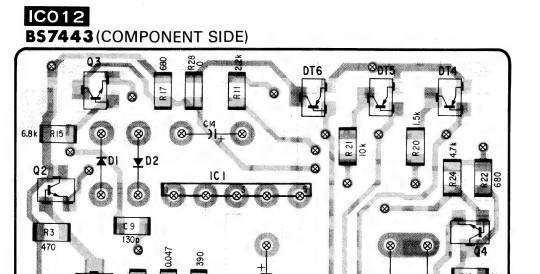
Ш

IC010

CH-44 BOARD (SOLDER SIDE)



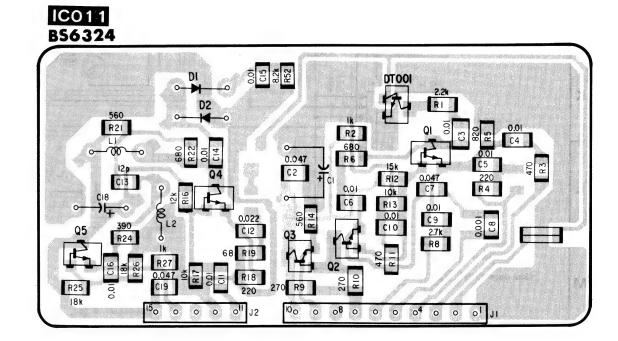


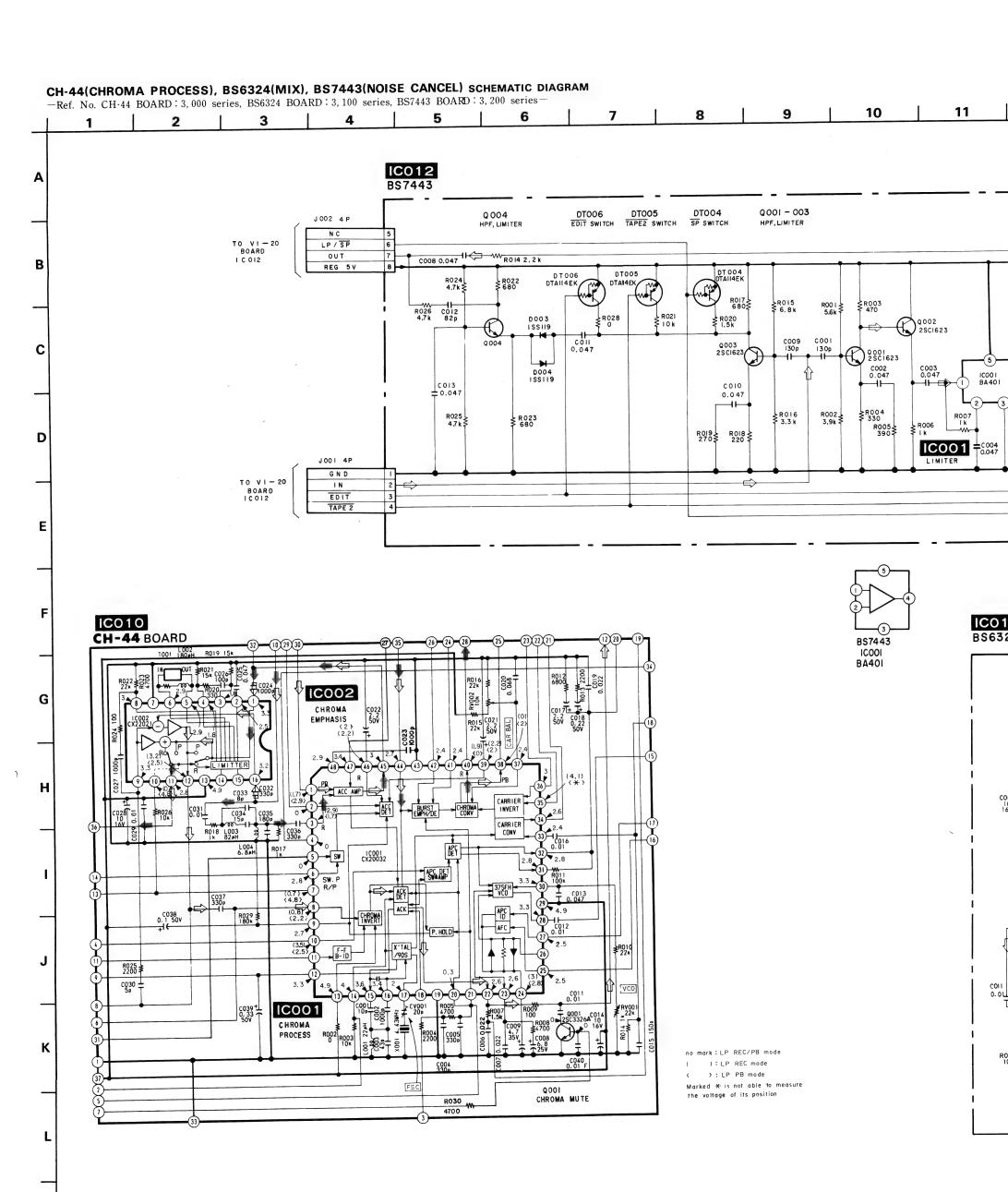


5 0 0 0 0⁸ J2

| CO12 | B\$7443 (SOLDER SIDE) | SOLDER SIDE | SOLDER SIDE

10 0 0 04 JI



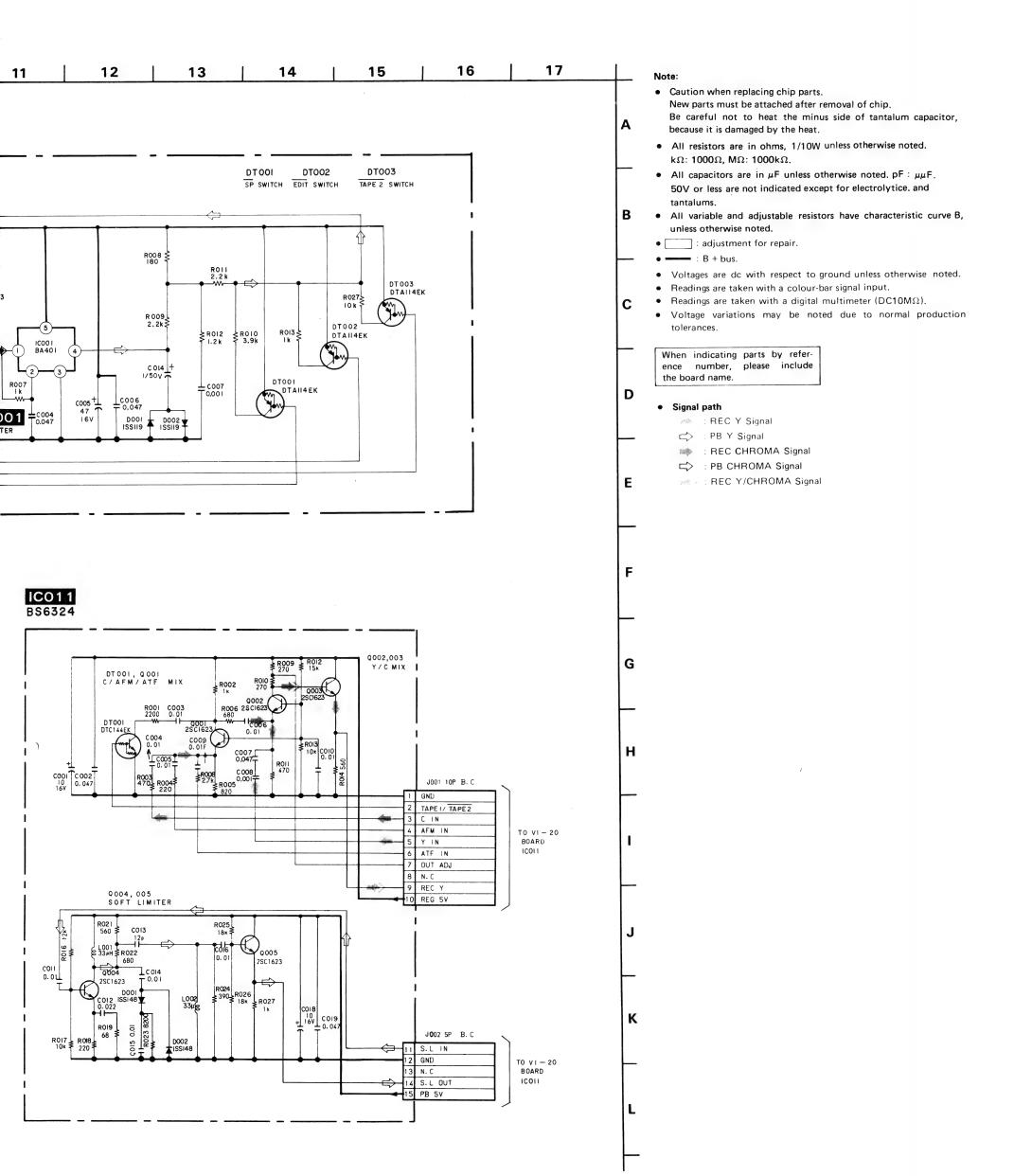


VIDEO(3)

VIDEO(3)

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-118



• 0— ;: indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

♦ Solution : Through hole.

• Pattern from the side which enables seeing.

: Pattern of the rear side,

• 38 : B+ pattern from the side which enables seeing.

• Digital transistor (TC-3:Q007) transistor with resistors. Refer to the TC-3 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

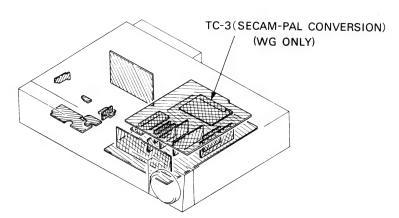
Caution:

Pattern face side: Parts on the pattern face side seen from

(Solder Side) the pattern face are indicated.

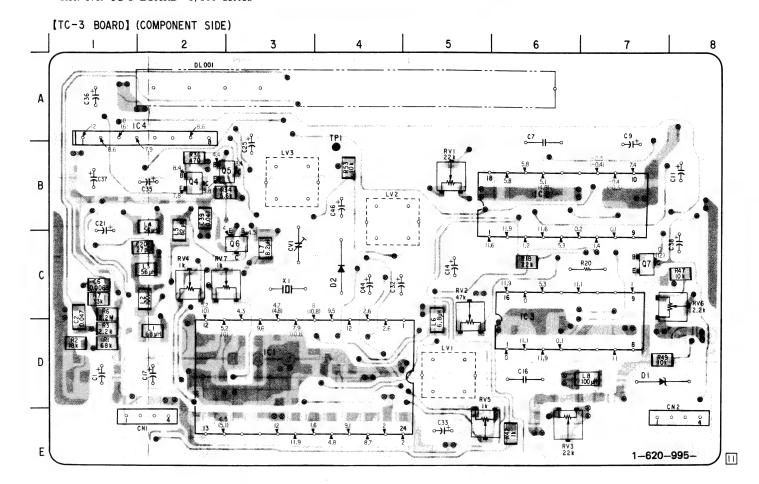
Parts face side: Parts on the parts face side seen from

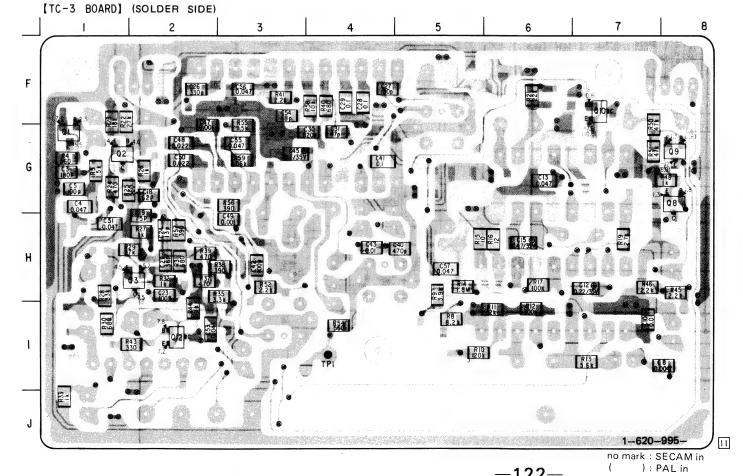
(Component Side) the parts face are indicated.



TC-3(SECAM-PAL CONVERSION) PRINTED WIRING BOARD (WG Model)

-Ref. No. TC-3 BOARD: 3,500 series-





CV1 C-3

D-5 B-4 B-3

G-1 G-1 H-2 B-2 C-3 C-7 B-8 B-8 A-7 D-2

B-5 C-5 E-6 C-2 E-5 C-8 C-3

B-4,I-4

IC1 IC2 IC3 IC4

LV1 LV2 LV3

Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q12

RV1 RV2 RV3 RV4 RV5 RV6 RV7

TP1

—123—

VIDEO(4) VIDEO(4)

THROUGH

2.60 2.6

C043 4

〒C04I

R053

TP001

R054 € C044 1+

(8.01) (8.01)

D002

±00 10.1 35V

D002 ISS106

(4.8)

CV001

RV007

R051 ₹

C040 470p PAL/SECAM RD6.8ESB2

C050 ⊥ 0.022 ⊤

LV003 У 10µН **Э**

DELAY LINE

R057 390

9,6 4.3 5.2 5.2

R056 390 ≩

C047 C048 L007 0.001 T0.022 T 82.H

THROUGH

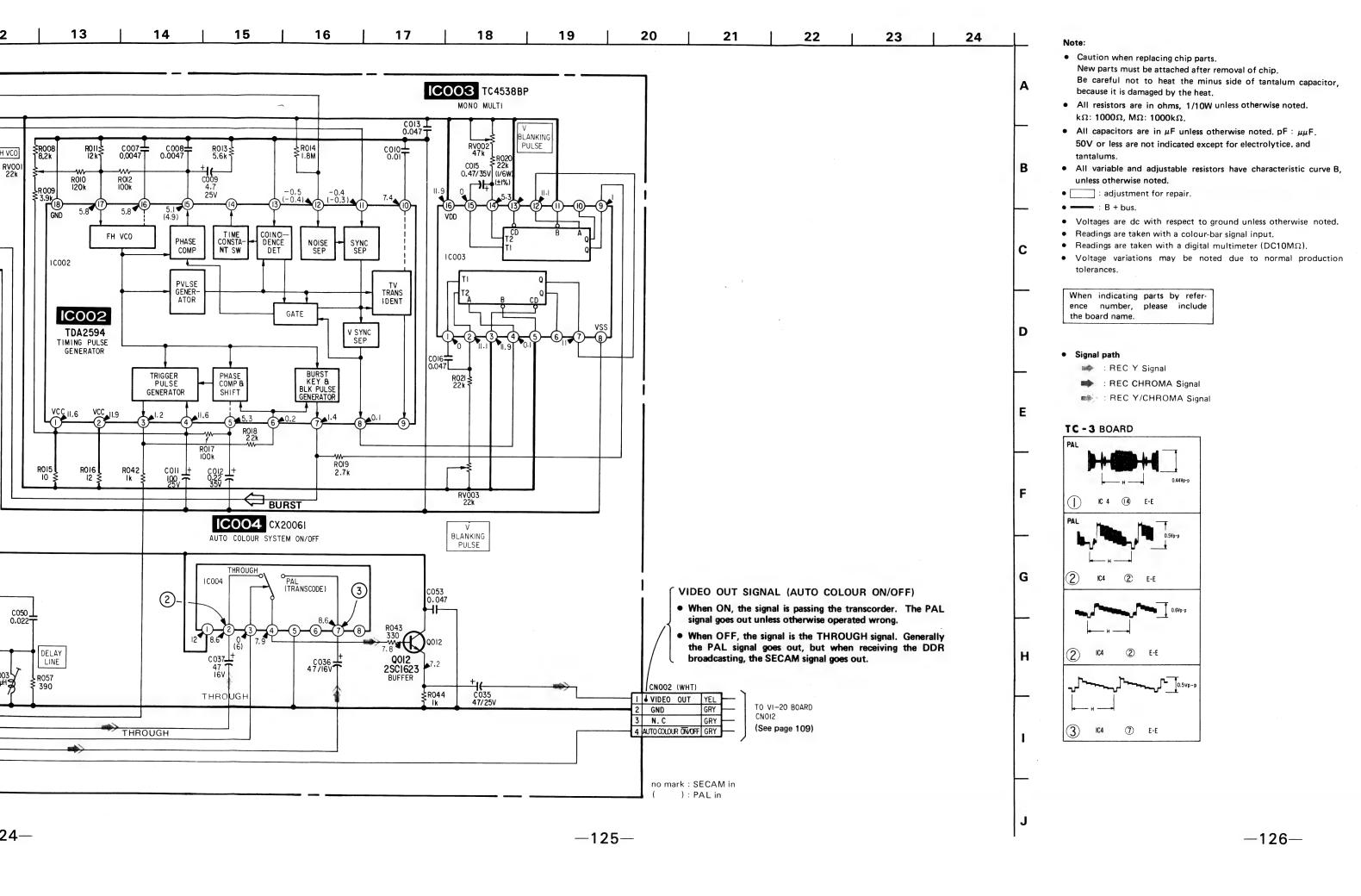
THROUGH

2).

THROUGH

PAL (TRANSCODE)

47/16V ↑



: indicates a lead wire mounted on the component side.

indicates a lead wire mounted on the printed side.

: Through hole.

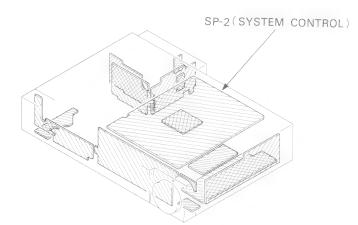
: Pattern from the side which enables seeing.

: B+ pattern from the side which enables seeing

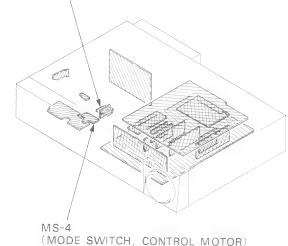
When indicating parts by reference number, please include the board name.

Caution:

(Component Side) the parts face are indicated.







Q401 Q500 Q501 Q502 Q601 Q602 Q604 TP603 TP604 G-20 D-18 TP607 TP608 TP609 G-22 C-21 E-18 C-13 C-14 B-14 B-21 J-18

SP-2BOARD(SOLDER SIDE)

H:31 H:31 G:3 D:10 D:10 D:10 B:28 B:28 B:5 I:22 F:3 B:9 H:17 H:16 G:16 E:17 F:16 H:17 F:16 K:18 C:17 RV203 RV204 RV205 RV206

D025
D021
D060
D080
D081
D082
D106
D107
D108
D1202
D203
D204
D205
D206
D208
D209
D211
D212
D213
D214
D215
D216
D217
D218
D220
D221
D222
D223
D225
D226
D227
D230
D231
D222
D233
D250
D231
D392
D391
D392
D393
D501
D502
D600
D601
D603
D604
D701

| IC001 | IC002 | IC003 | IC004 | IC005 | IC007 | IC008 | IC007 | IC008 | IC007 | IC008 | IC009 | IC010 | IC010 | IC010 | IC011 | IC012 | IC0204 | IC0205 | IC0208 | IC0209 | IC0210 | IC0208 | IC0209 | IC0210 | IC0211 | IC0212 | IC0213 | IC0214 | IC0215 | IC0215 | IC0216 | IC0217 | IC0218 |

IC500 IC501 IC502 IC600 IC601 IC602 IC603 IC604

IC605 IC606 IC701 IC703

E-20 F-20 D-14 E-18 H-18 K-5 L-30

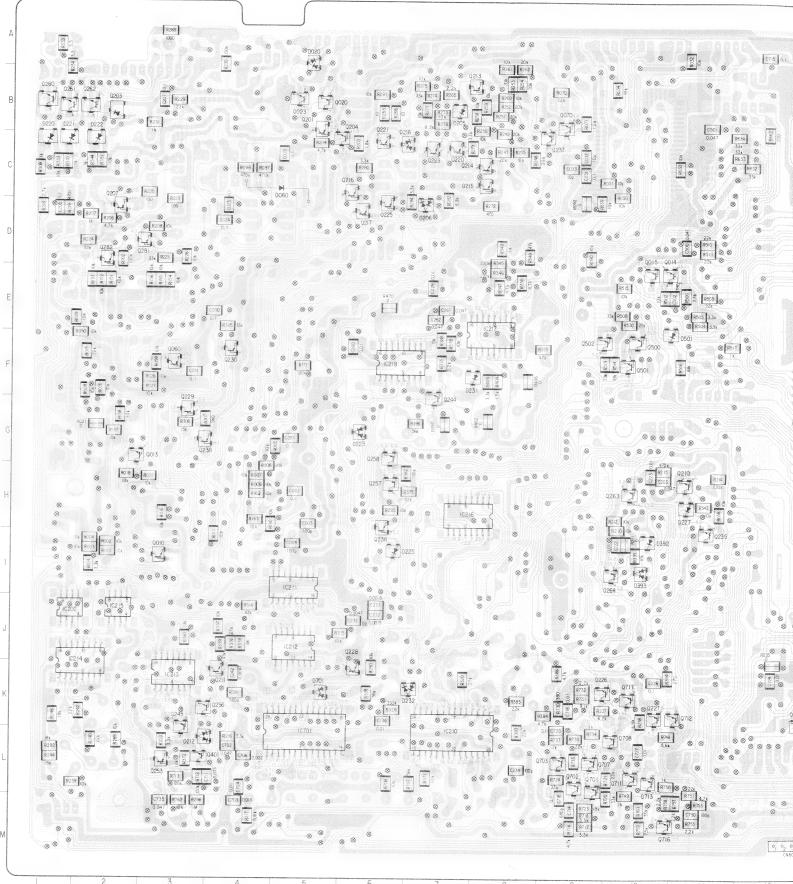
D-16 K-16 B-28 B-27 B-6 C-30 C-32 D-30 H-11 K-4-26 B-7 C-7 C-6 C-27 C-7 C-6 C-27 C-7 C-6 C-26 K-9 G-7 K-10 E-27 F-27 J-14 I-10 I-10 F-11 H-13 B-13 H-14 I-14 H-14 K-5 K-23 RV601 RV602 RV603 RV604

H-30 F-31 C-23 F-29 F-28 C-29 D-30 L-18 H-17 J-17

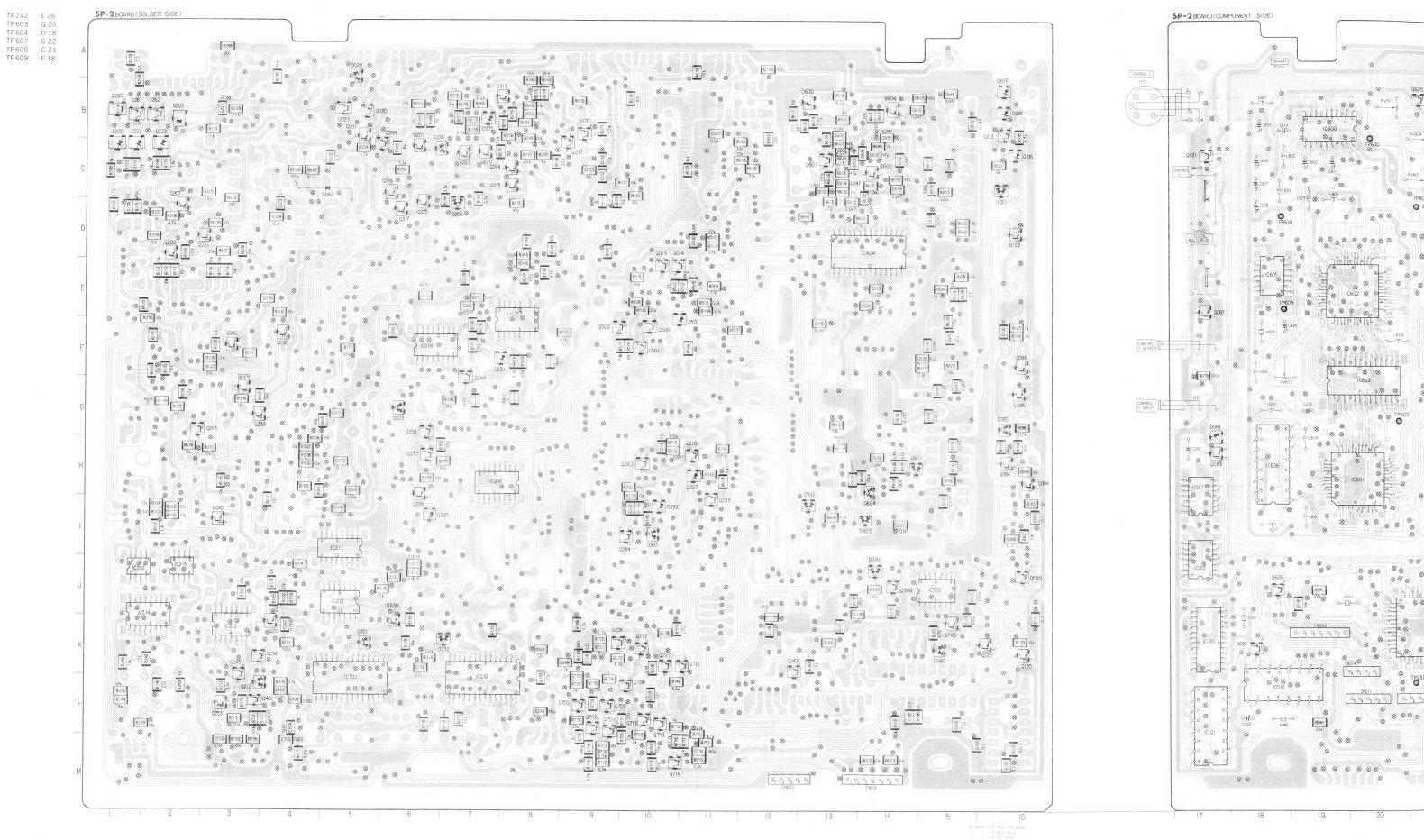
K·3 H·28 I·31 K·31 L·30 L·3 K·31 K·4 H·6 G·6 B·1

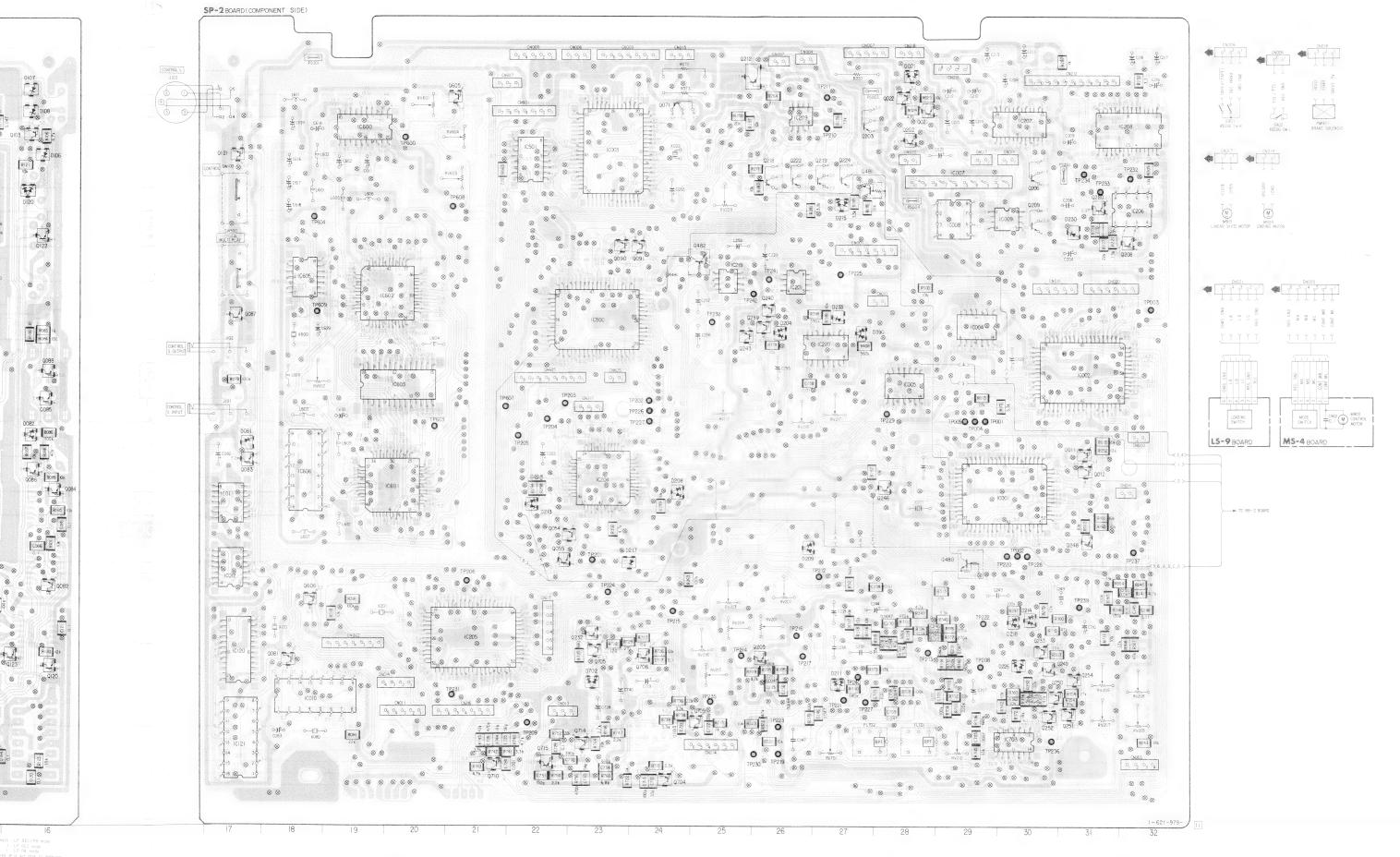
TP232 TP233 TP234 TP235 TP236 TP237 TP238 TP239 TP240 TP241 B-1 B-2 H-10 I-10 C-31 D-2 D-2 J-14 N-30 I-32 E-25 J-31 K-27 E-26

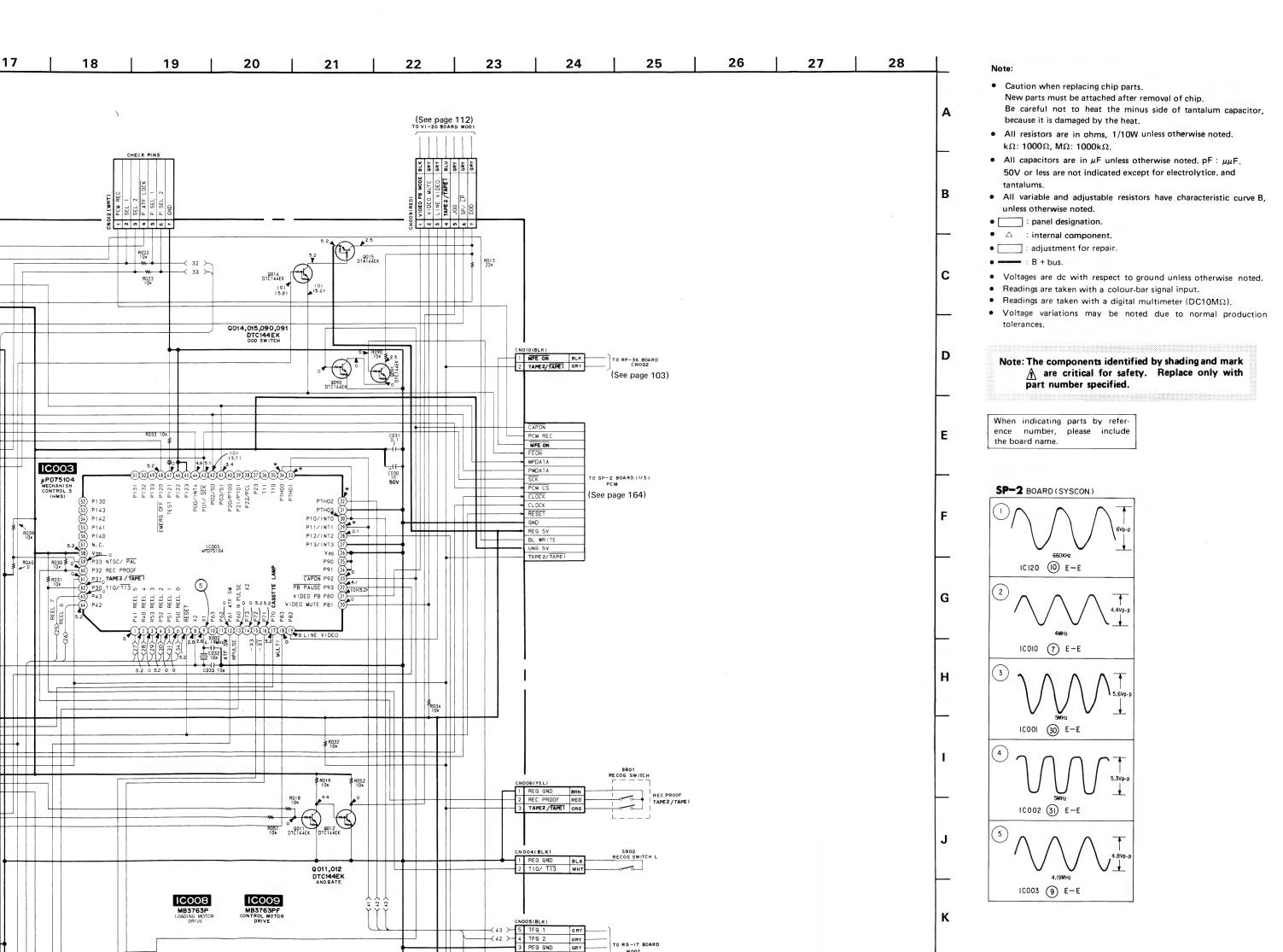
SP-2(SYSTEM CONTROL), LS-9(LOADING SWITCH), MS-4(MODE SWITCH, CONTROL MOTOR) PRINTED WIRING BOARD -Ref. No. SP-2 BOARD: 4,000 siries, LS-9 BOARD: 5,000 series, MS-4 BOARD: 6,000 series-

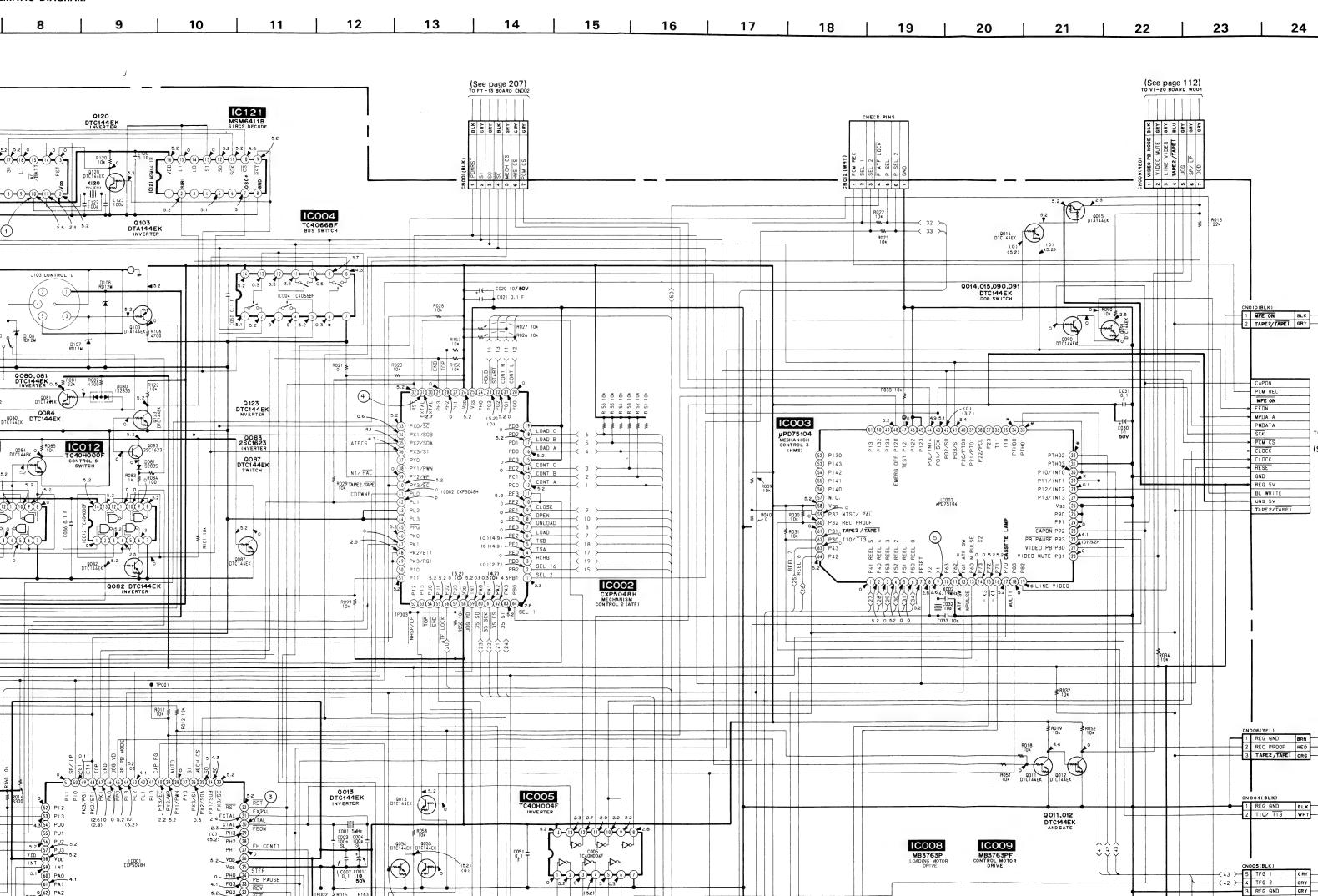


Ref. No. SP-2 BOARD: 4,000 siries, LS-9 BOARD: 5,000 series, MS-4 BOARD: 6,000 series—





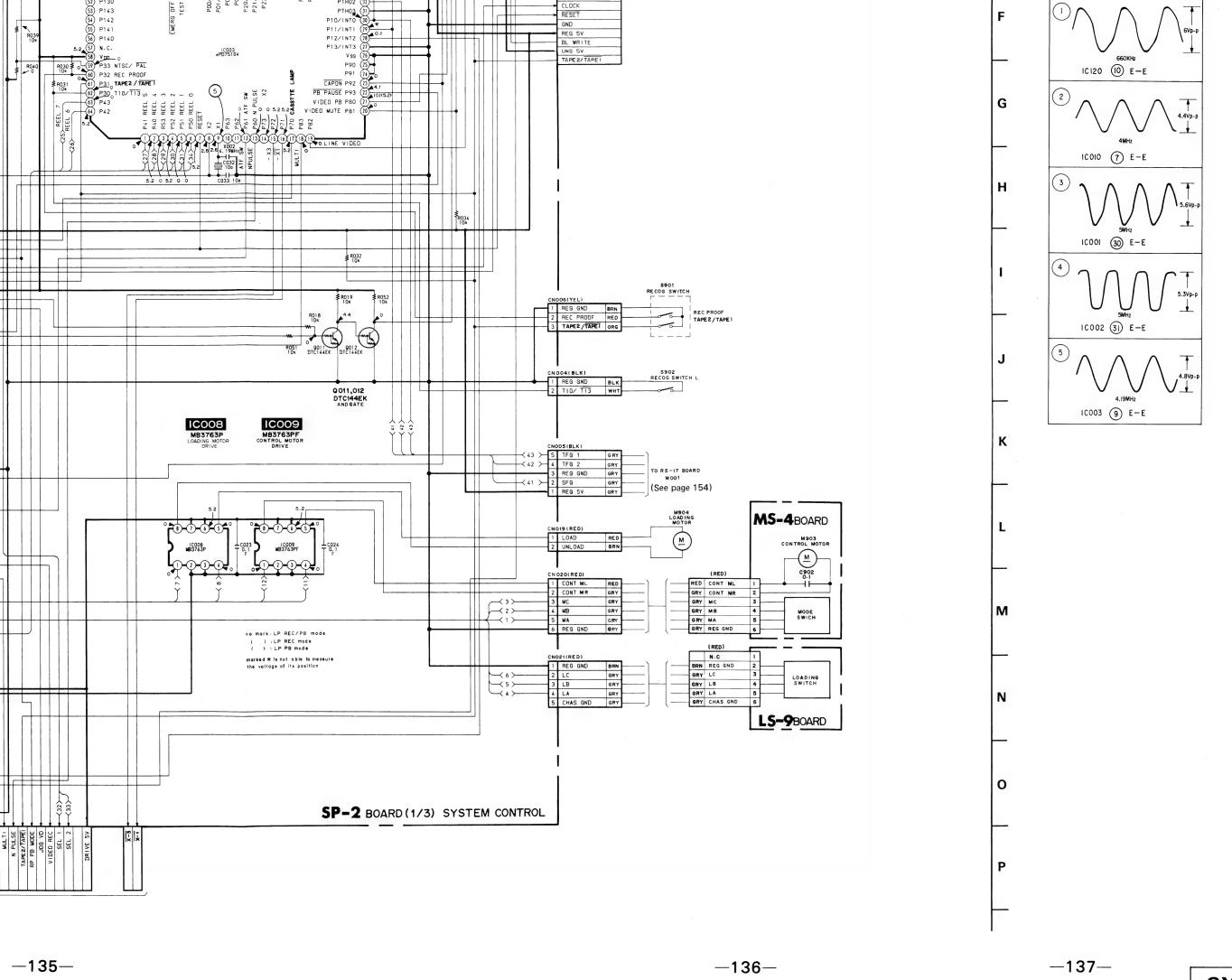


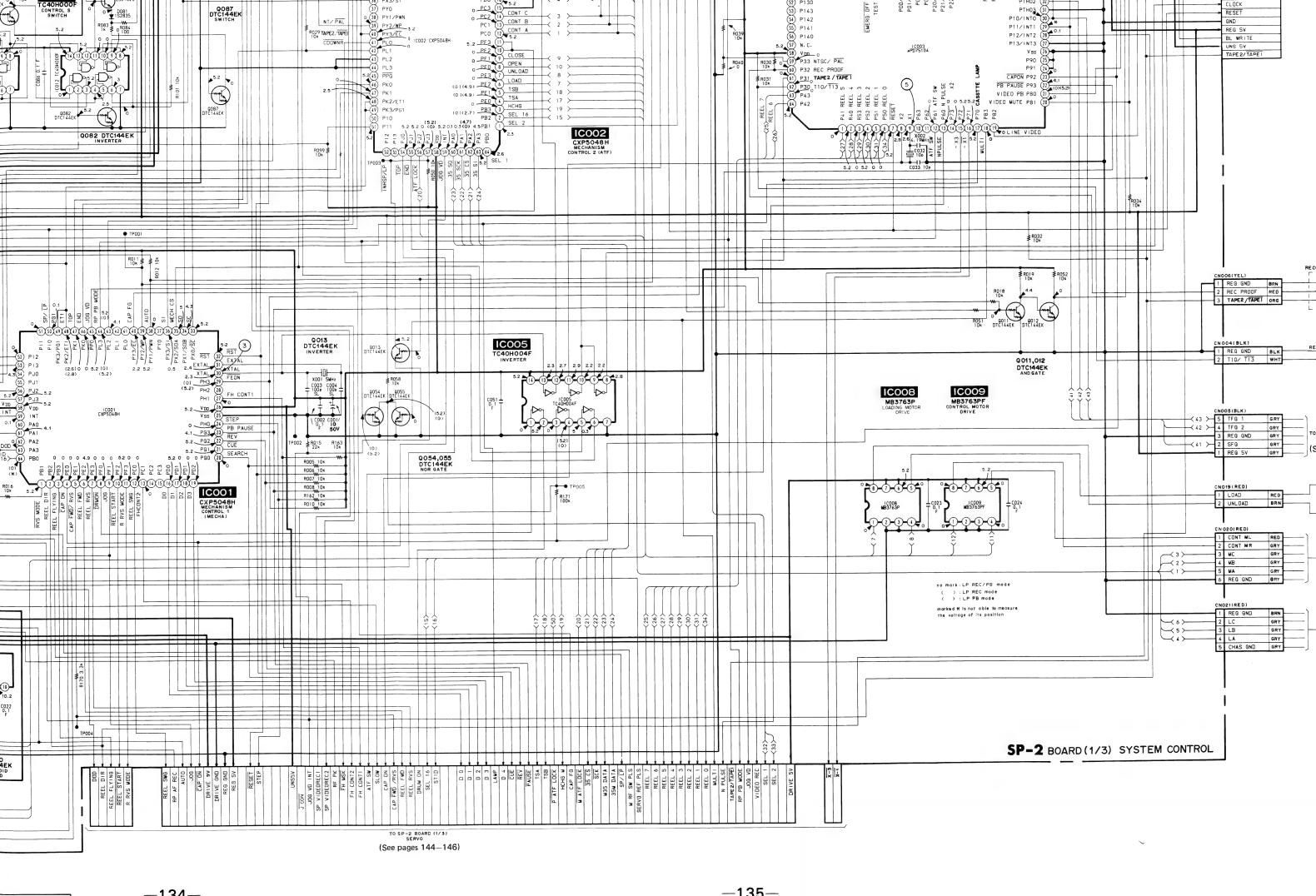


TO PR-13 BOARD

GRY TRACON (-

V SS (25 STEP 0 PHO (24 PB PAUSE 4.1 PG3 (23) REV

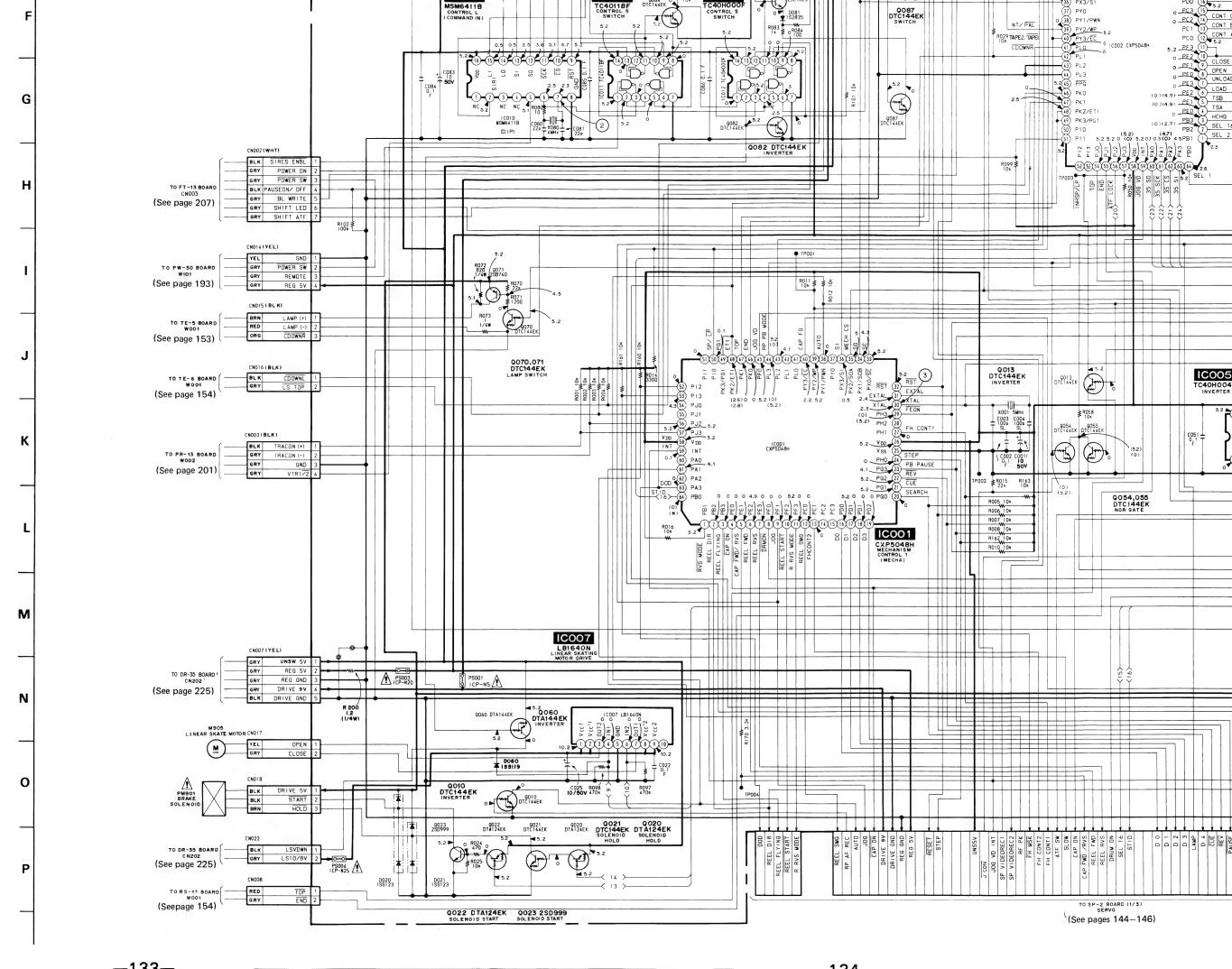




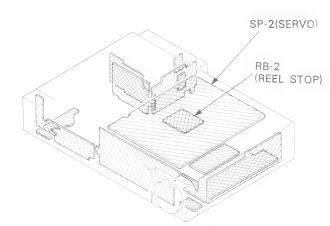
—134—

TROL

P1H02 (32)

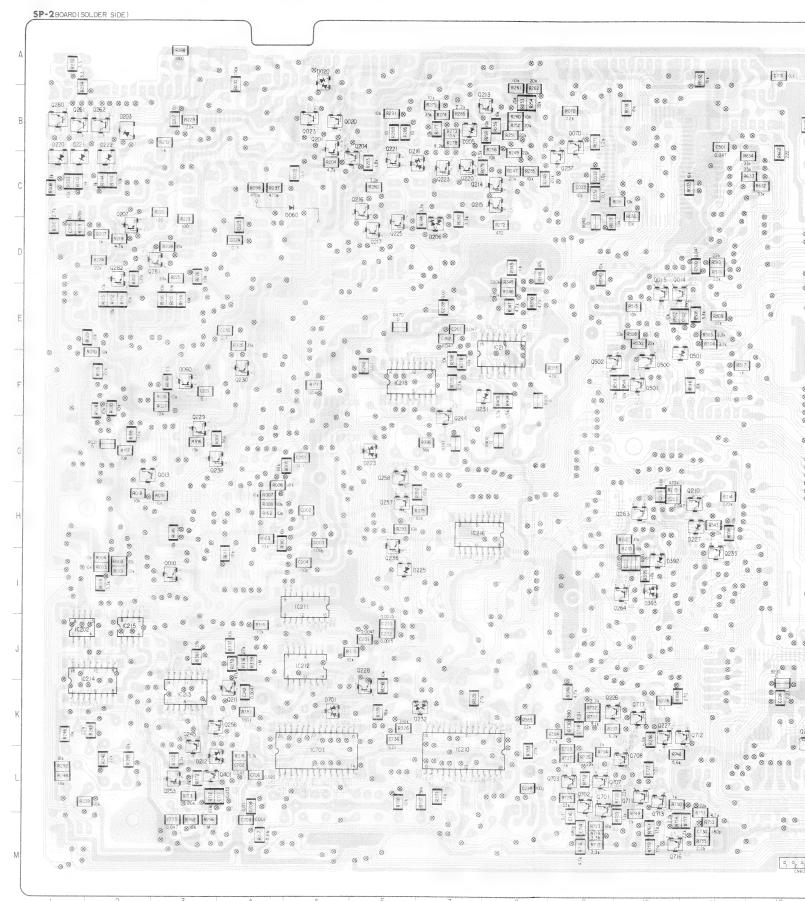


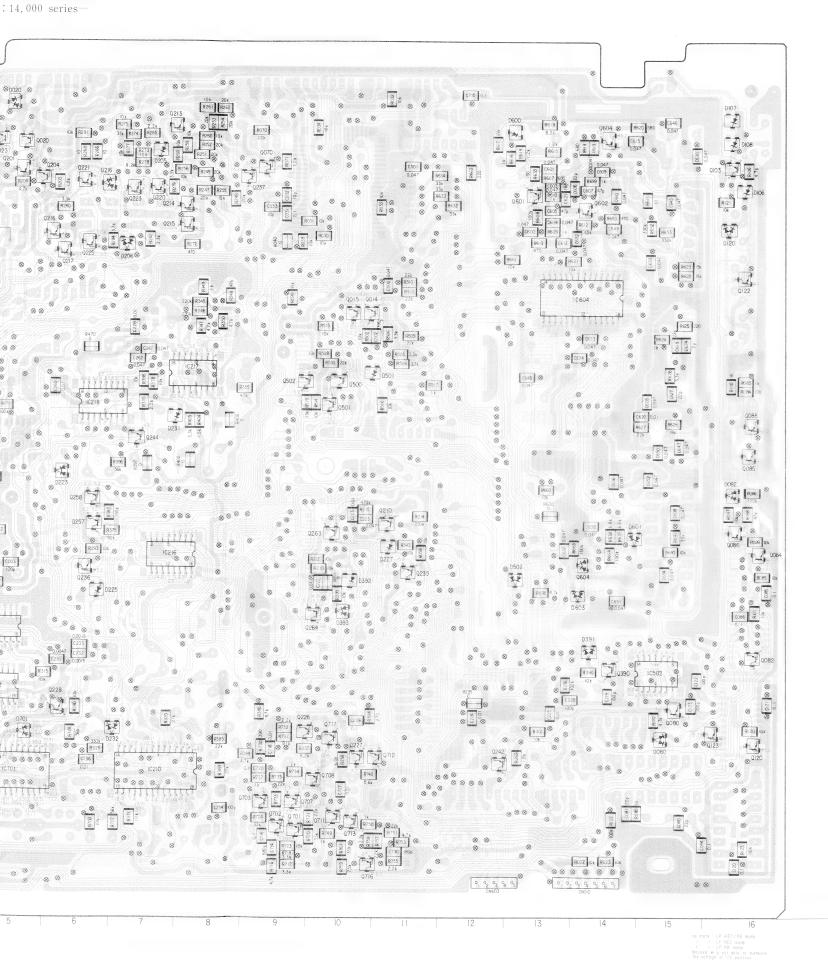
- : indicates a lead wire mounted on the component side.
- - : indicates a lead wire mounted on the printed side.
- : Pattern from the side which enables seeing.
- Pattern of the rear side.B+ pattern from the side which enables seeing.



SP-2(SERVO), RB-2(REEL STOP) PRINTED WIRING BOARDS

-Ref. No. SP-2 BOARD: 4,000 series, RB-2 BOARD: 14,000 series-

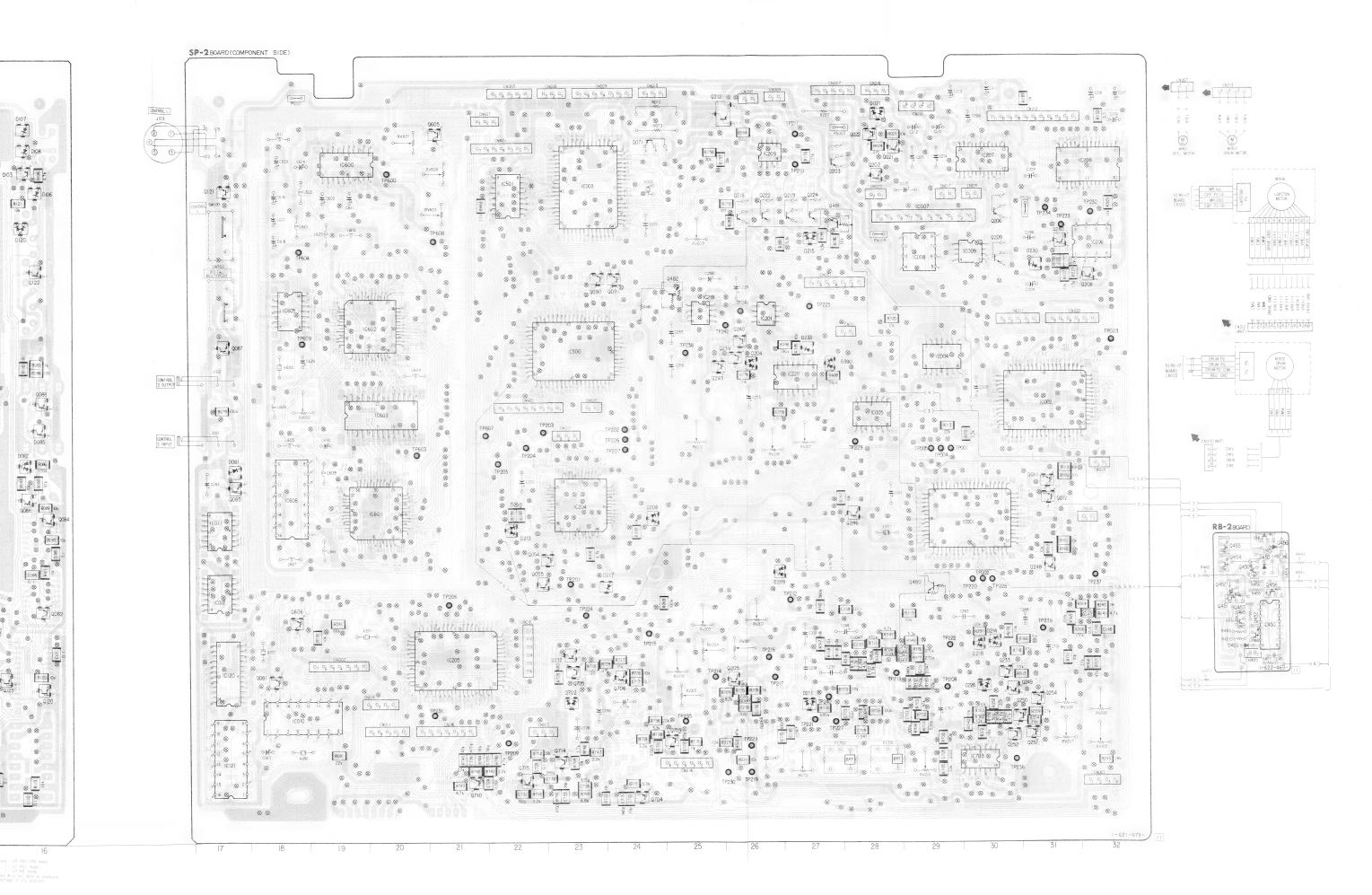






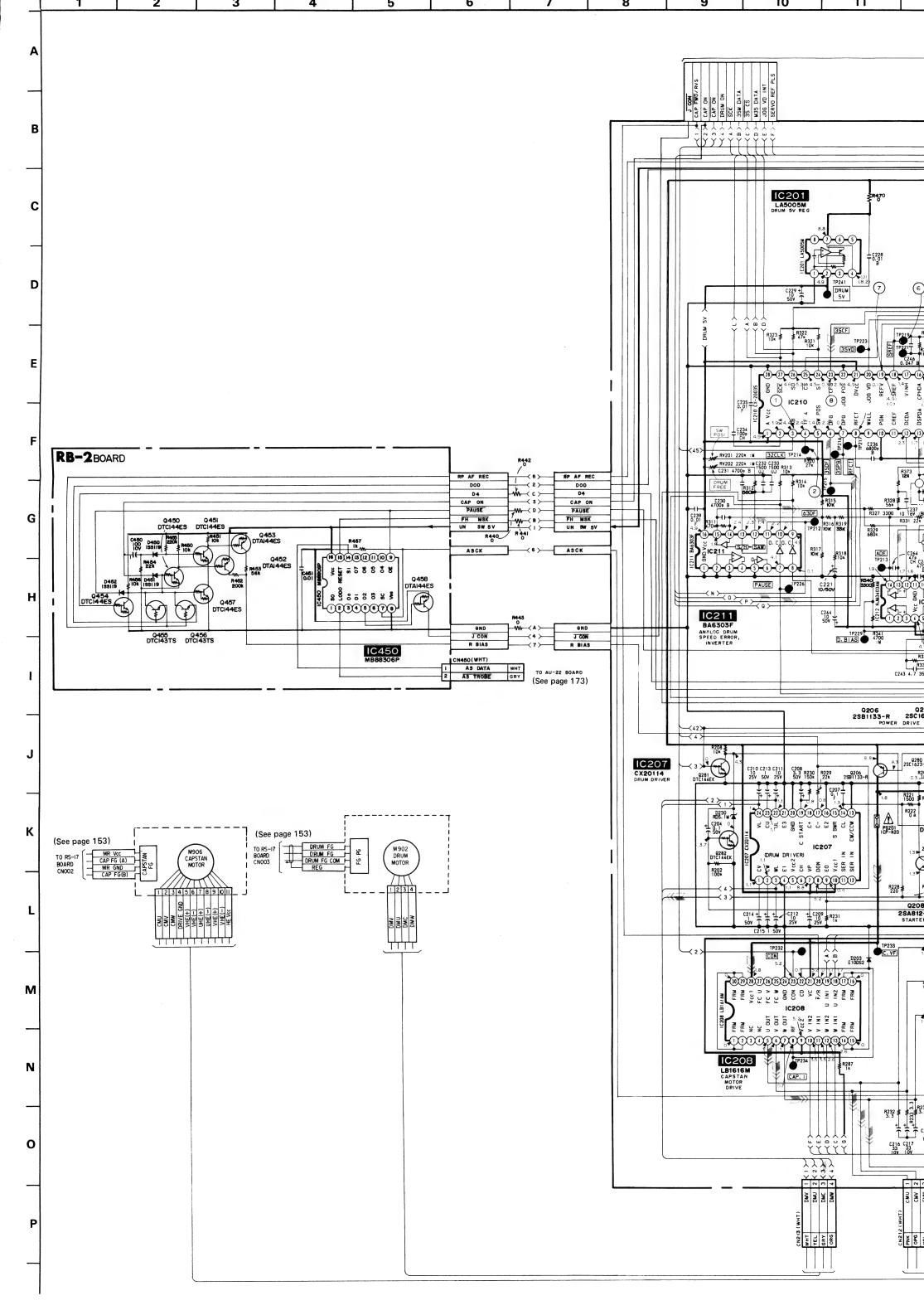
...

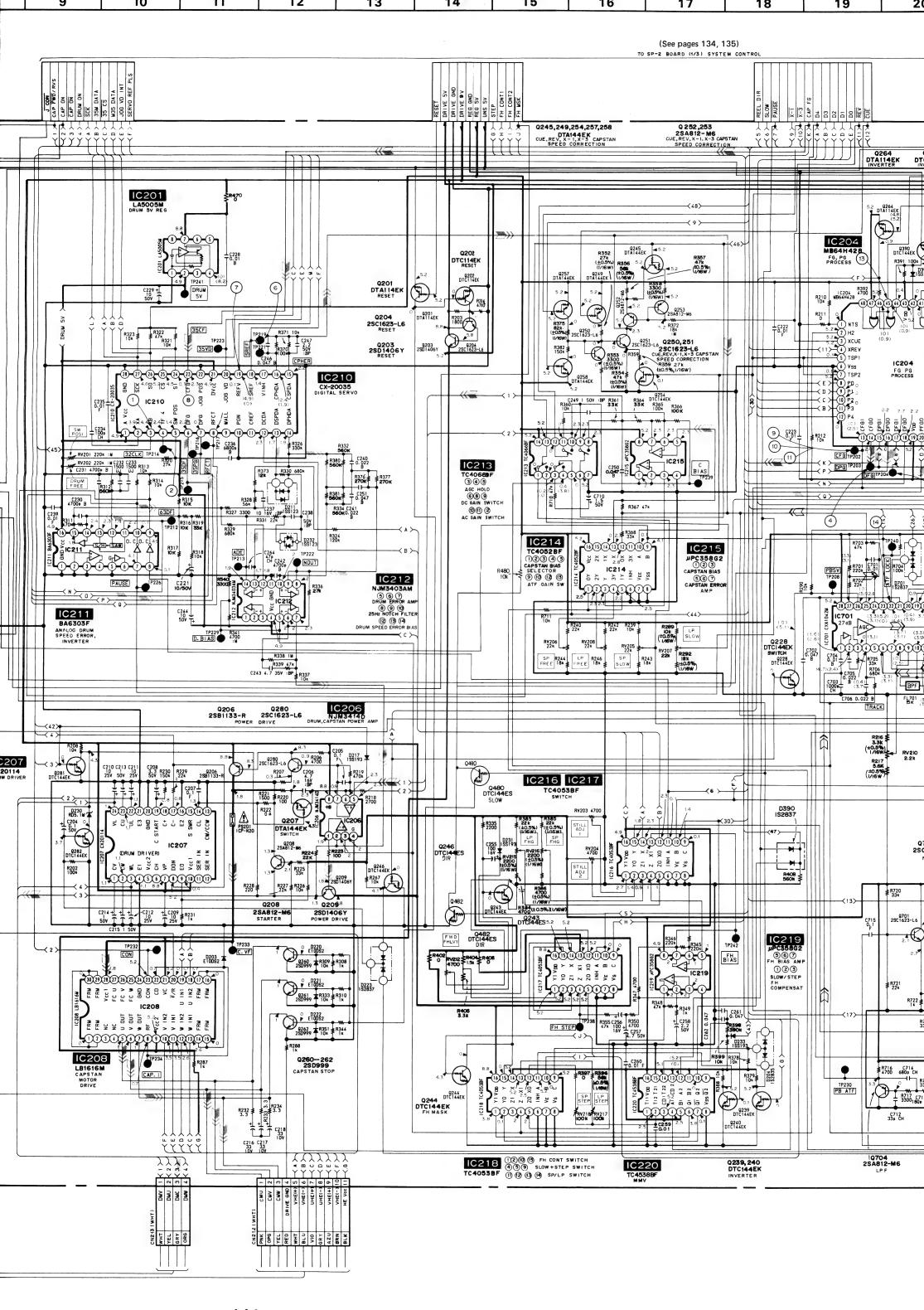
SE

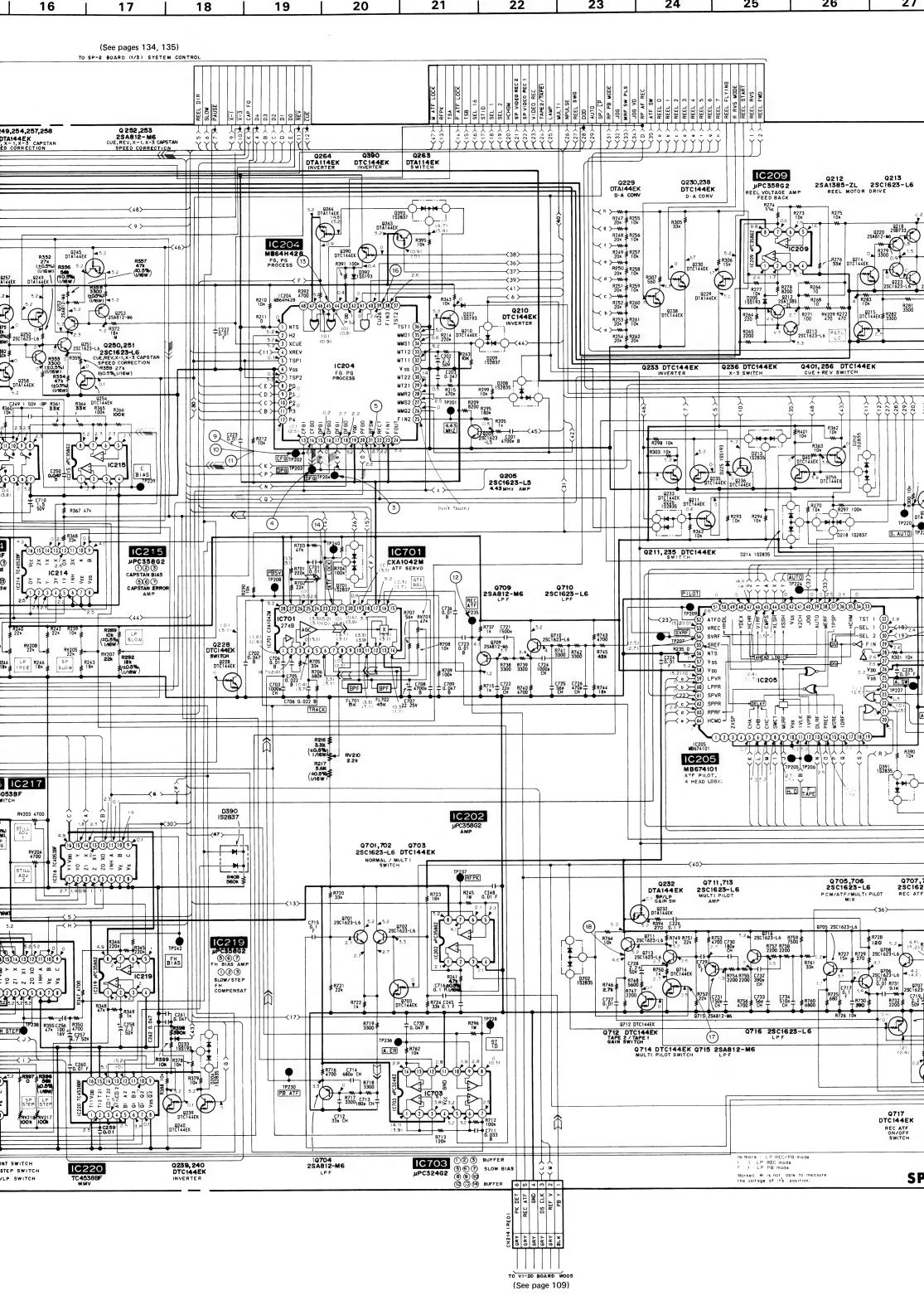


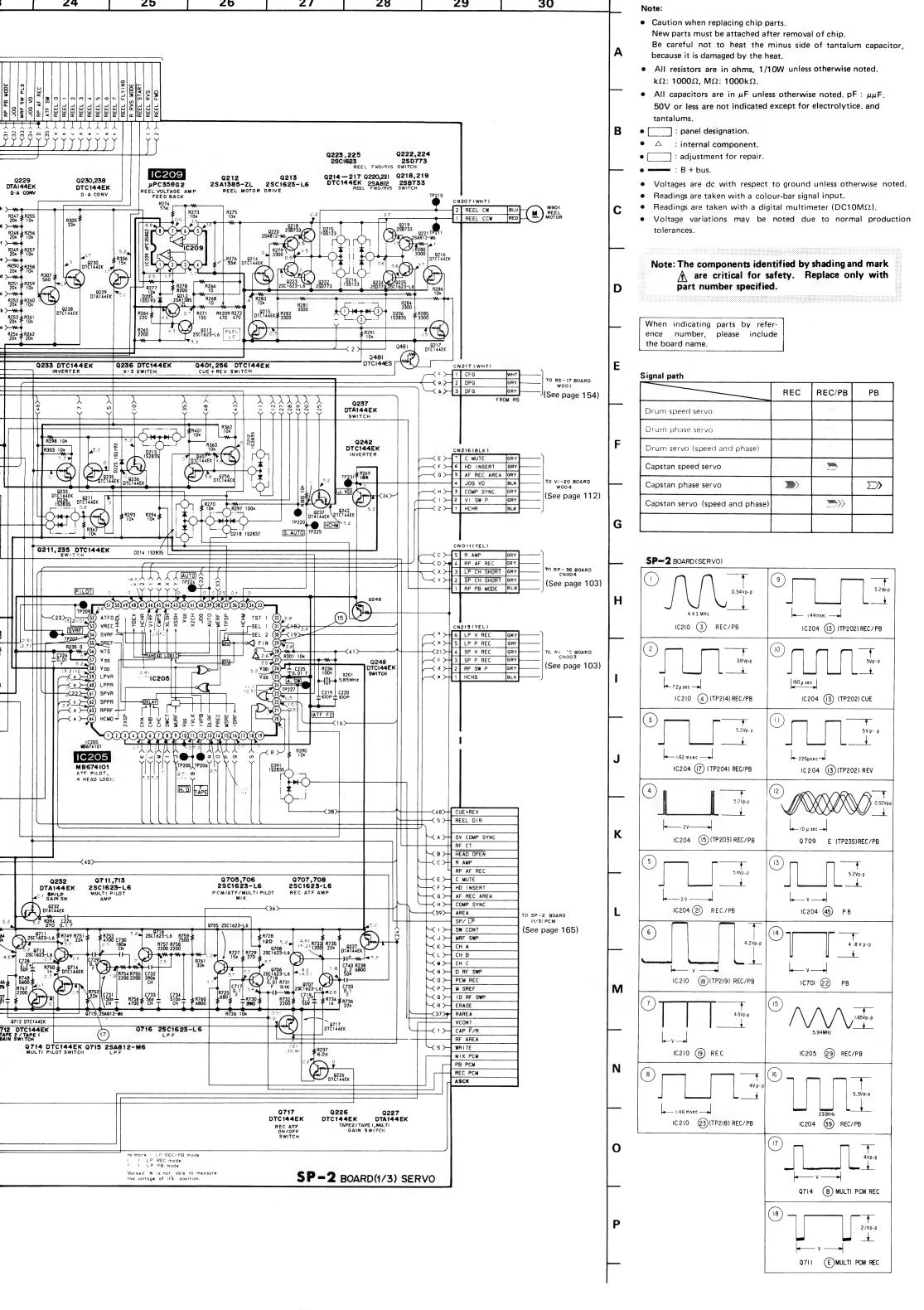
-141-

-142-









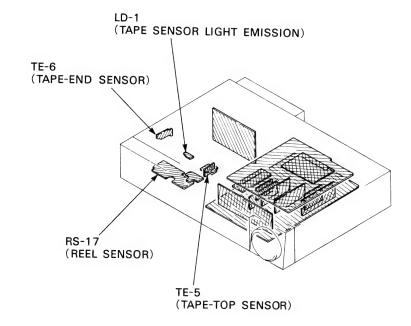
Note

- O : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side,
- ♦ : Through hole.
- Pattern from the side which enables seeing.
- Pattern of the rear side.
- : B+ pattern from the side which enables seeing.
- Digital transistor (RS-17:Q001,002,003) transistor with resistors.
 Refer to the RS-17 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

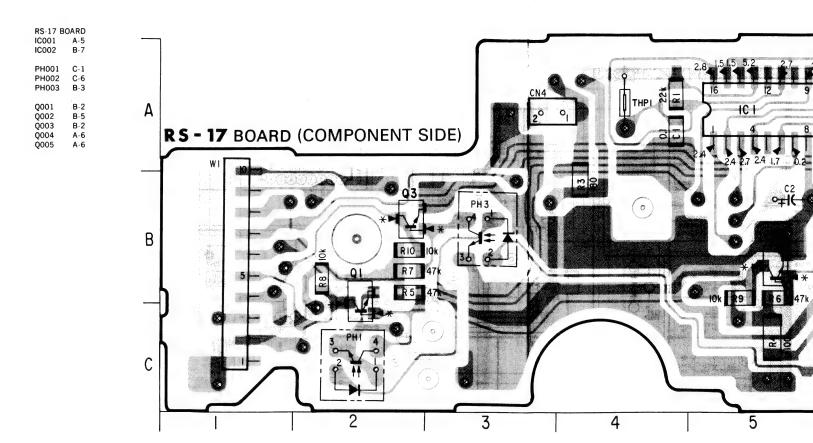
Caution:

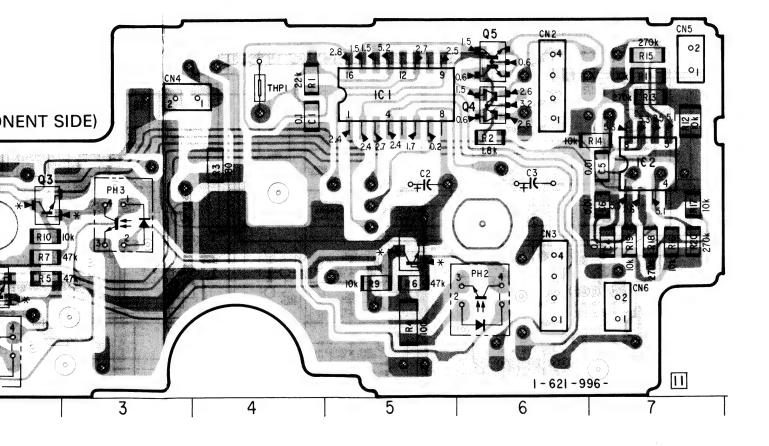
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

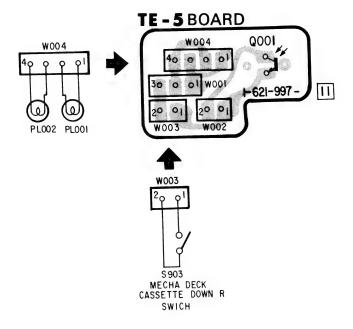


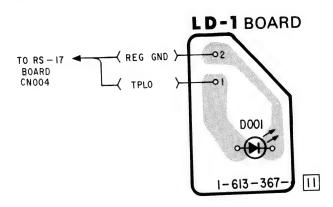
RS-17(REEL SENSOR), TE-5(TAPE-TOP SENSOR), TE-6(TAPE-END SENSOR), LD-1(TAPE SENSOR

Ref. No. RS-17 BOARD: 5, 000 series, TE-5 BOARD: 5, 100 series, TE-6: 5, 200 series, LD-1 BOARD: 5, 300 series

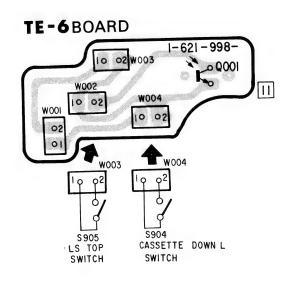








no mark: LP REC/PB mode Marked \star is not be able to measure the voltage of its position



IC001

RS-17

2

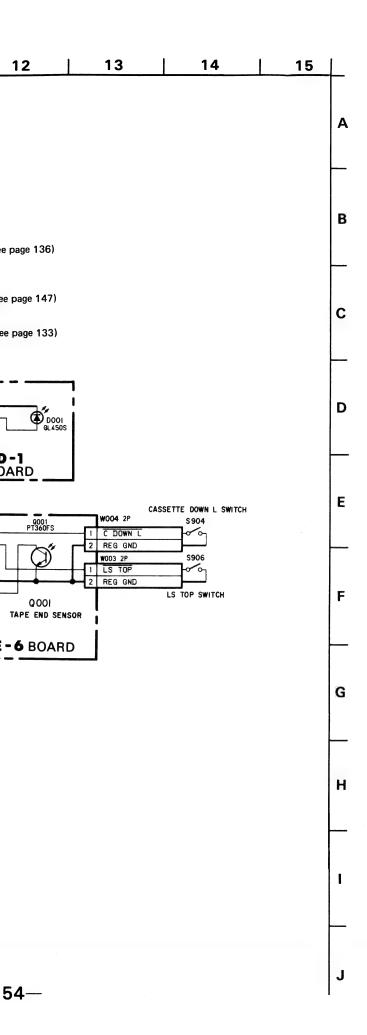
3

2

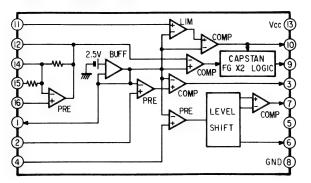
3

9

4



IC001 CX20115A



RS-17 BOARD 1 2 26mVp-p 3 1C001 ② ③ REC/PB 2 15.2Vp-p 1C001 ⑦ REC/PB 3 9 5.2Vp-p 40mVp-p 60mVp-p 1C001 ② REC/PB

lote:

- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF: μμF.
 50V or less are not indicated except for electrolytice, and tantalums
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- --- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

• Signal path

	REC	REC/PB	РВ
Drum speed servo			
Drum phase servo			
Capstan servo (speed and phase)		> >>	

SP-2(PCM AUDIO PROCESS) PRINTED WIRING BOARD

-Ref. No. SP-2 BOARD: 4,000 series-

N	lote:		
6	· ·	:	indicates a lead wire mounted on the component side.
. 6			indicates a lead wire mounted on the printed side.

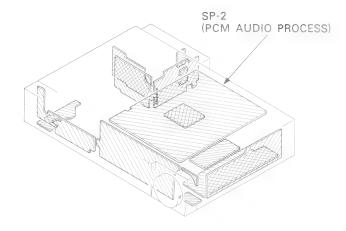
S: Through hole.Pattern from the side which

• Pattern from the side which enables seeing.

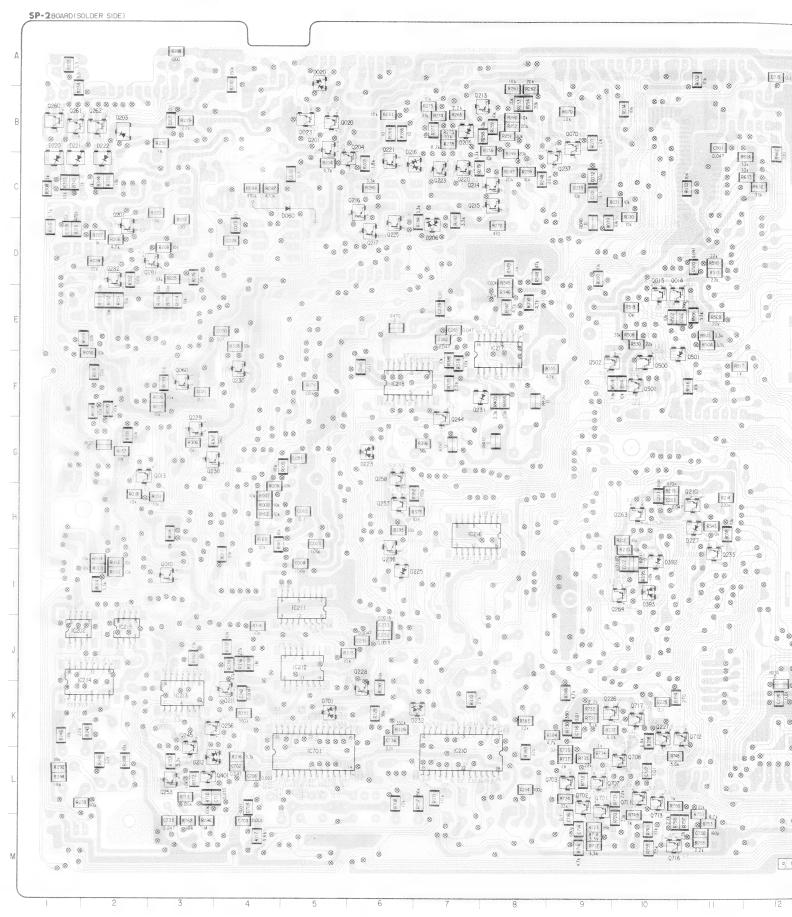
: Pattern of the rear side

• B+ pattern from the side which enables seeing.

When indicating parts by reference number, please include the board name.

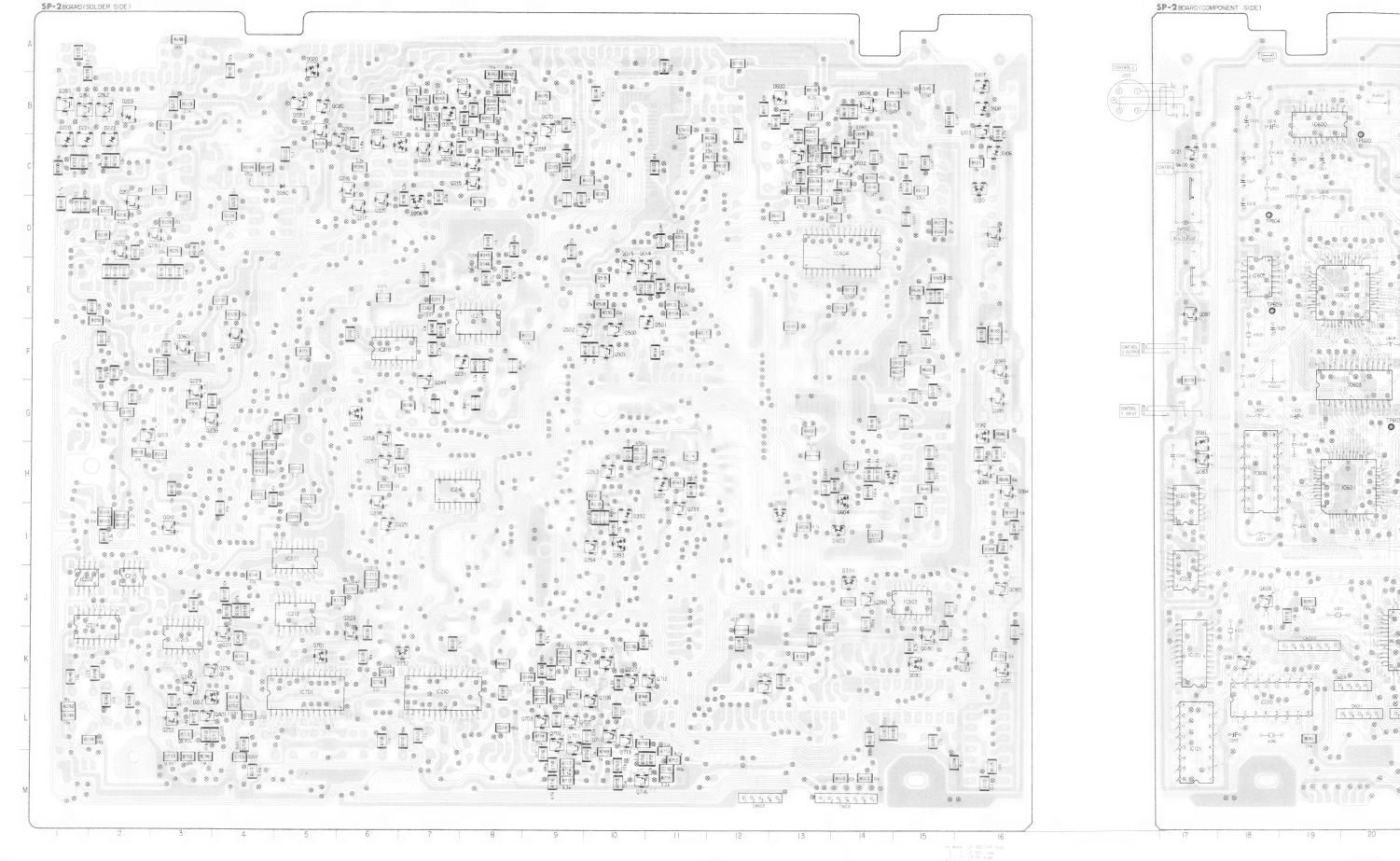


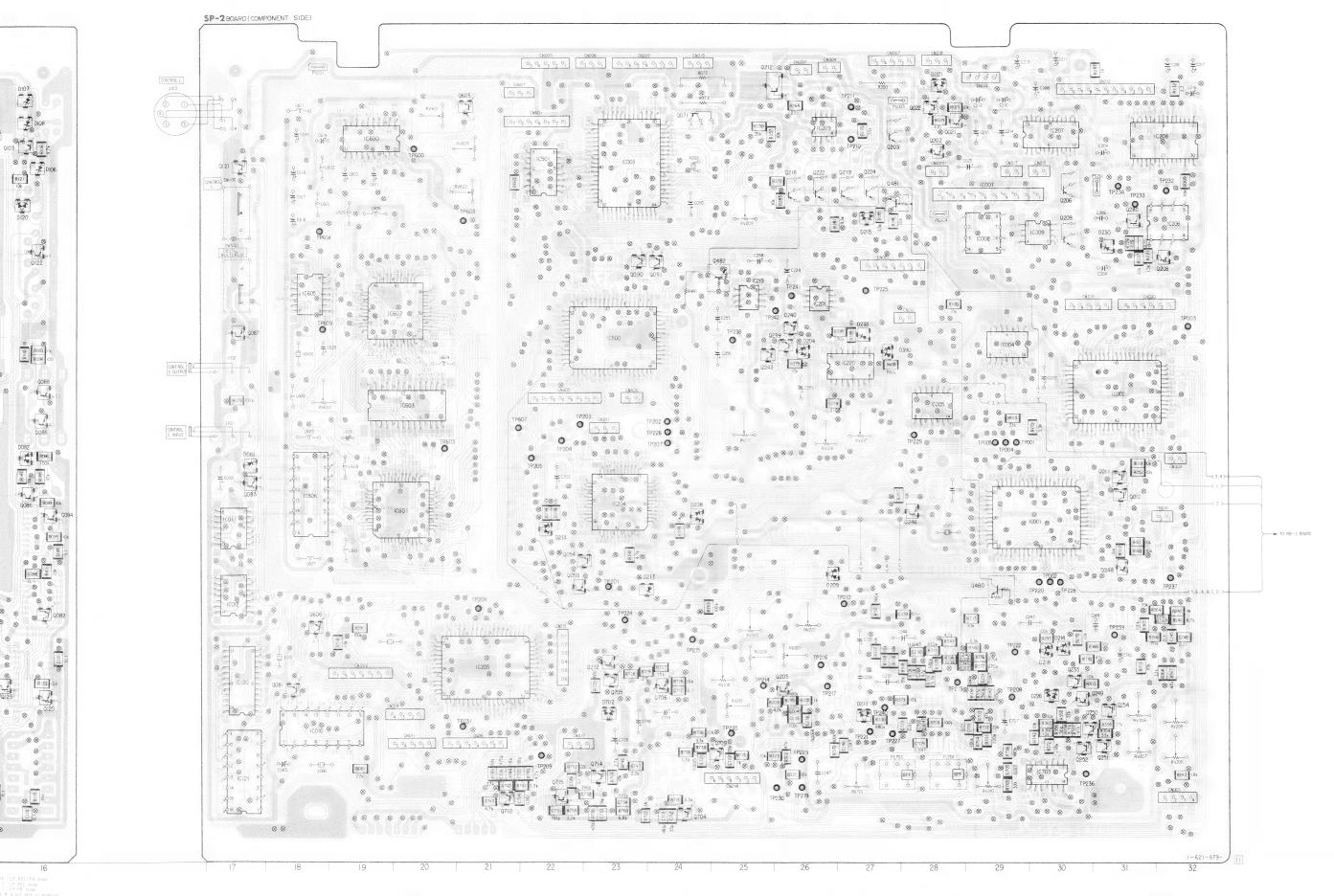
A-5	Q401 L-4 TP242 E-26 Q500 F-10 TP603 G-20 Q501 F-10 TP604 D-18 Q502 F-9 TP607 G-22 Q601 C-13 TP608 C-21 Q602 C-14 TP609 E-18 Q604 B-14 Q605 B-21 Q606 J-18 Q701 L-9 Q702 L-9 Q703 L-9 Q703 L-9 Q704 M-24 Q705 K-23 Q706 K-24 Q707 L-9 Q708 L-10 Q709 L-25 Q710 M-21 Q711 L-10 Q711 L-10 Q711 L-10 Q712 K-11 Q713 L-10 Q714 L-23 Q715 L-22 Q716 M-10 Q717 K-10 RV201 J-26 RV202 J-26 RV202 J-26 RV204 J-26 RV205 L-32 RV206 K-31 RV207 L-31 RV208 L-32 RV206 K-25 RV210 M-29 RV212 G-25 RV210 M-29 RV217 G-27 RV218 G-26 RV201 B-20 RV604 B-21 RV604 B-21 RV604 B-21 RV701 M-27 TP001 G-29 TP002 G-24 TP203 G-22 TP206 G-22 TP206 G-22 TP206 G-22 TP206 G-22 TP207 G-24 TP208 K-29 TP201 L-23 TP207 G-24 TP208 K-29 TP209 L-22 TP206 G-22 TP206 G-22 TP206 G-22 TP206 G-22 TP207 G-24 TP208 K-29 TP209 L-22 TP201 L-23 TP202 G-24 TP203 G-22 TP204 G-22 TP205 G-22 TP205 G-22 TP206 G-24 TP207 G-24 TP208 K-29 TP209 L-22 TP209 G-24 TP209 L-22 TP209 G-24	
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-Ref. No. SP-2 BOARD: 4,000 series-

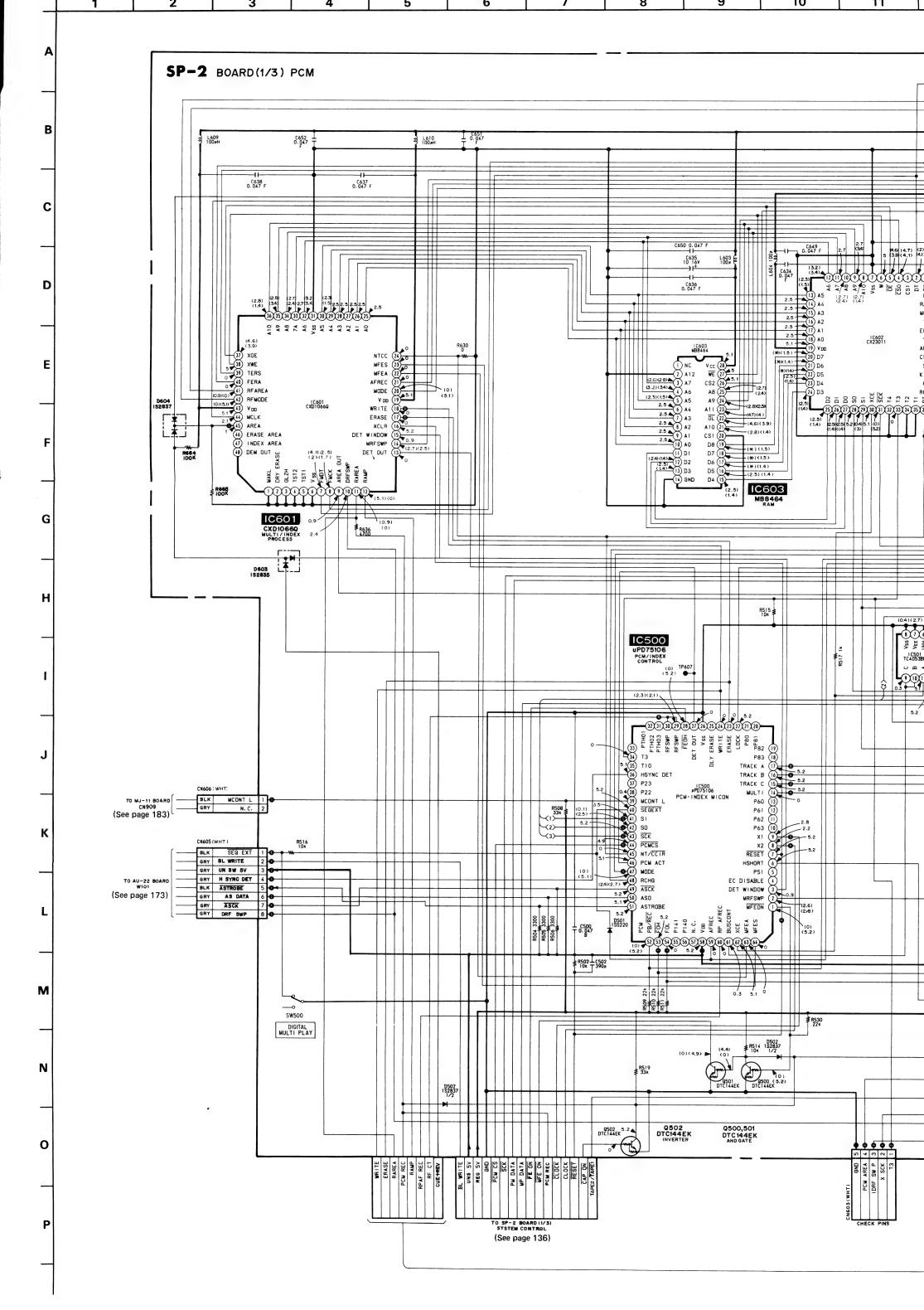
TP242 E.26 TP603 G.20 TP604 D.18 TP607 G.22 TP608 C.21 TP609 E.18

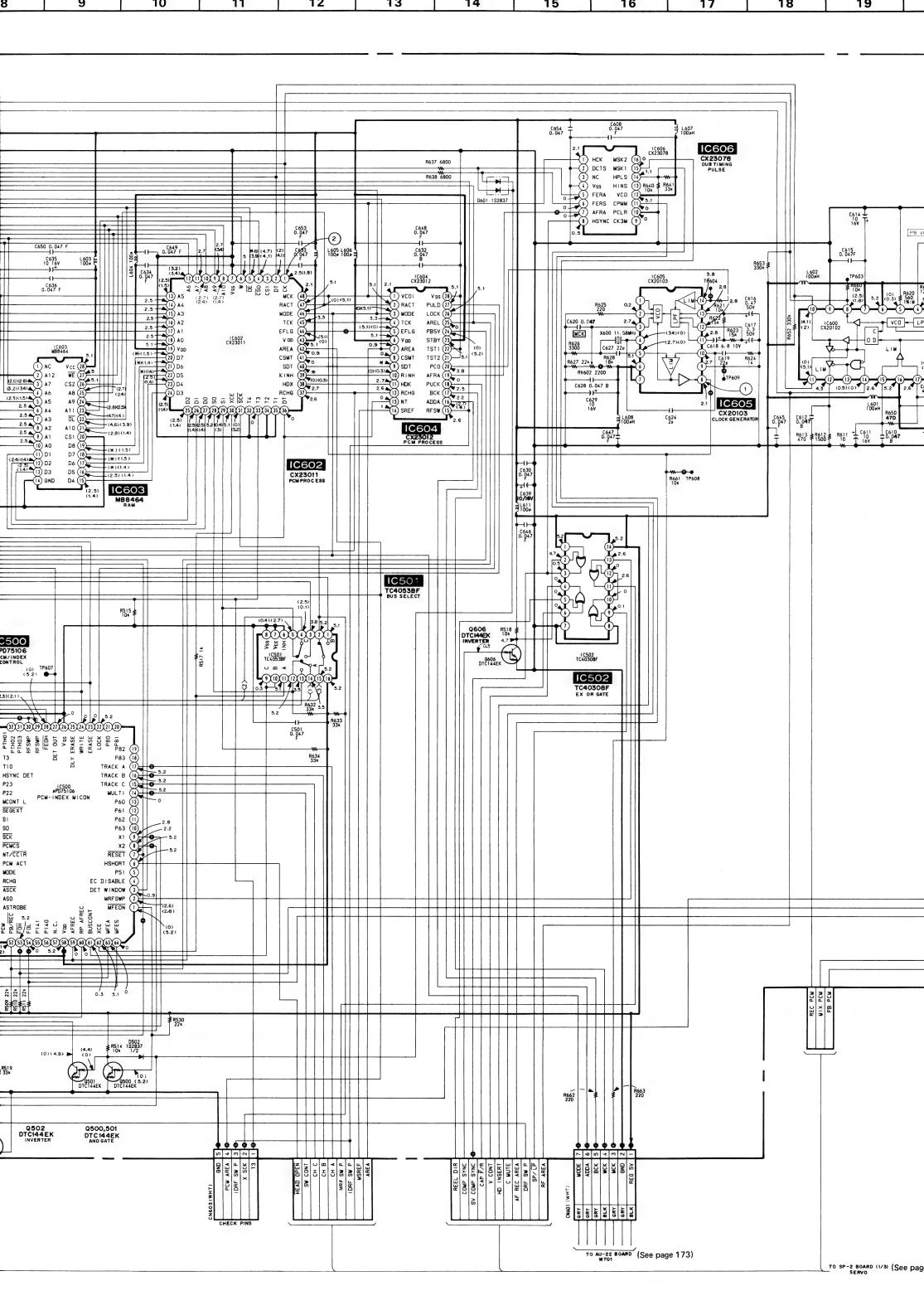


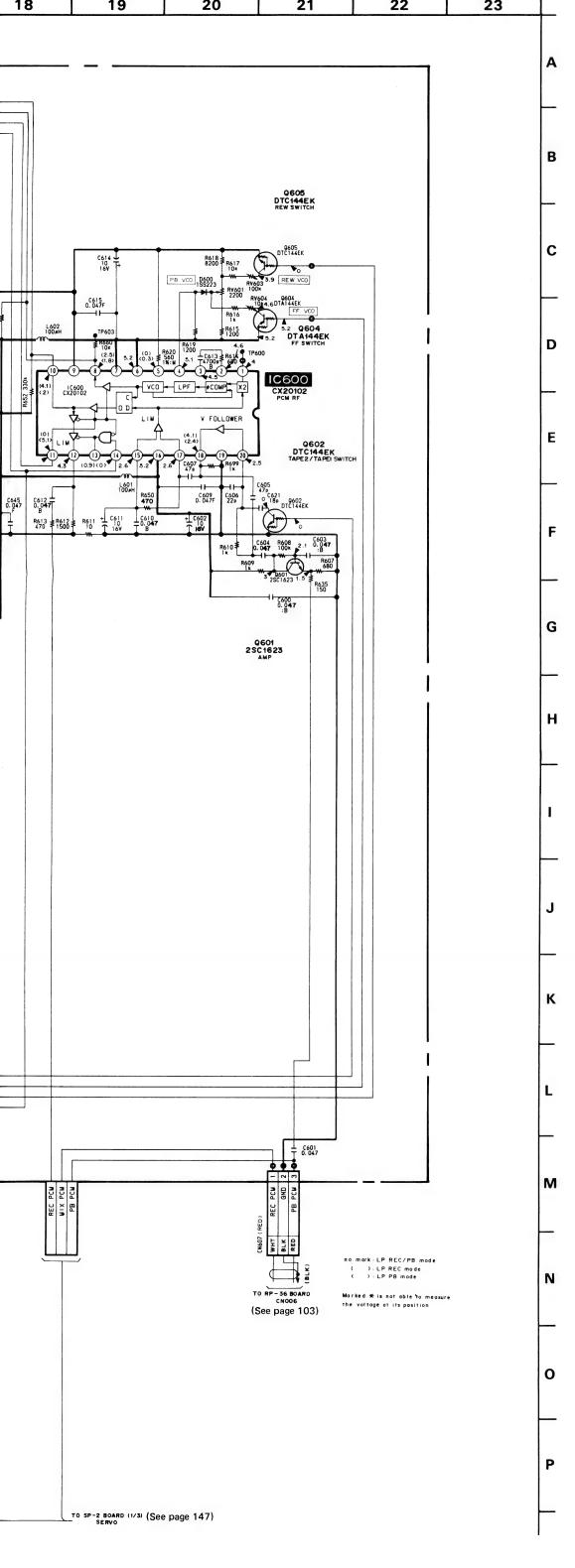


-161-

-162-



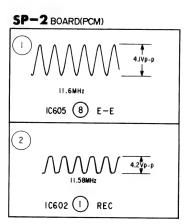




- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
 kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
 50V or less are not indicated except for electrolytice. and tantalums.
- _____: panel designation.
- △ : internal component.
- adjustment for repair.
- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances,

When indicating parts by reference number, please include the board name.

• Signal path



AU-22(AUDIO) PRINTED WIRING BOARD

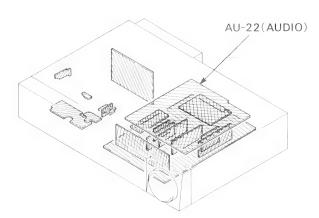
Ref. No. AU-22 BOARDS 7,000 series

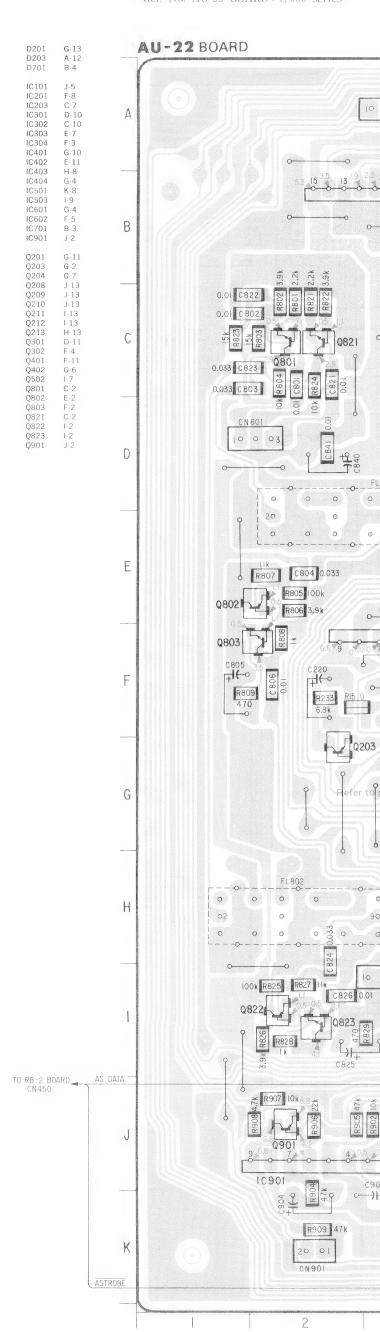
Note:

- indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- soldering side.B+ Pattern.
- Digital transistor (AU-22:Q201,Q204,Q502) transistor with resistors.

Refer to the AU-22 board schematic diagram for digital transistor.

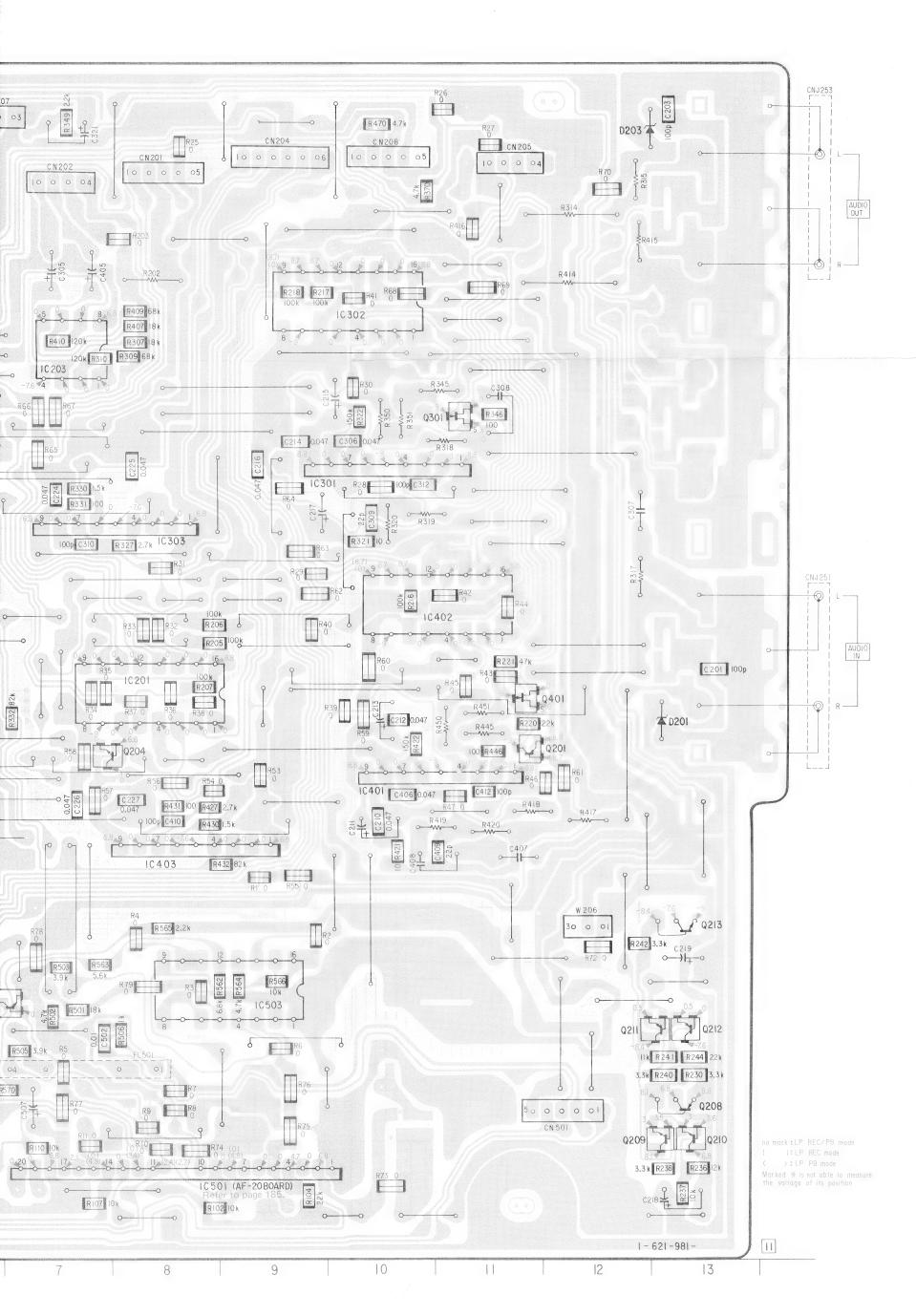
When indicating parts by reference number, please include the board name.

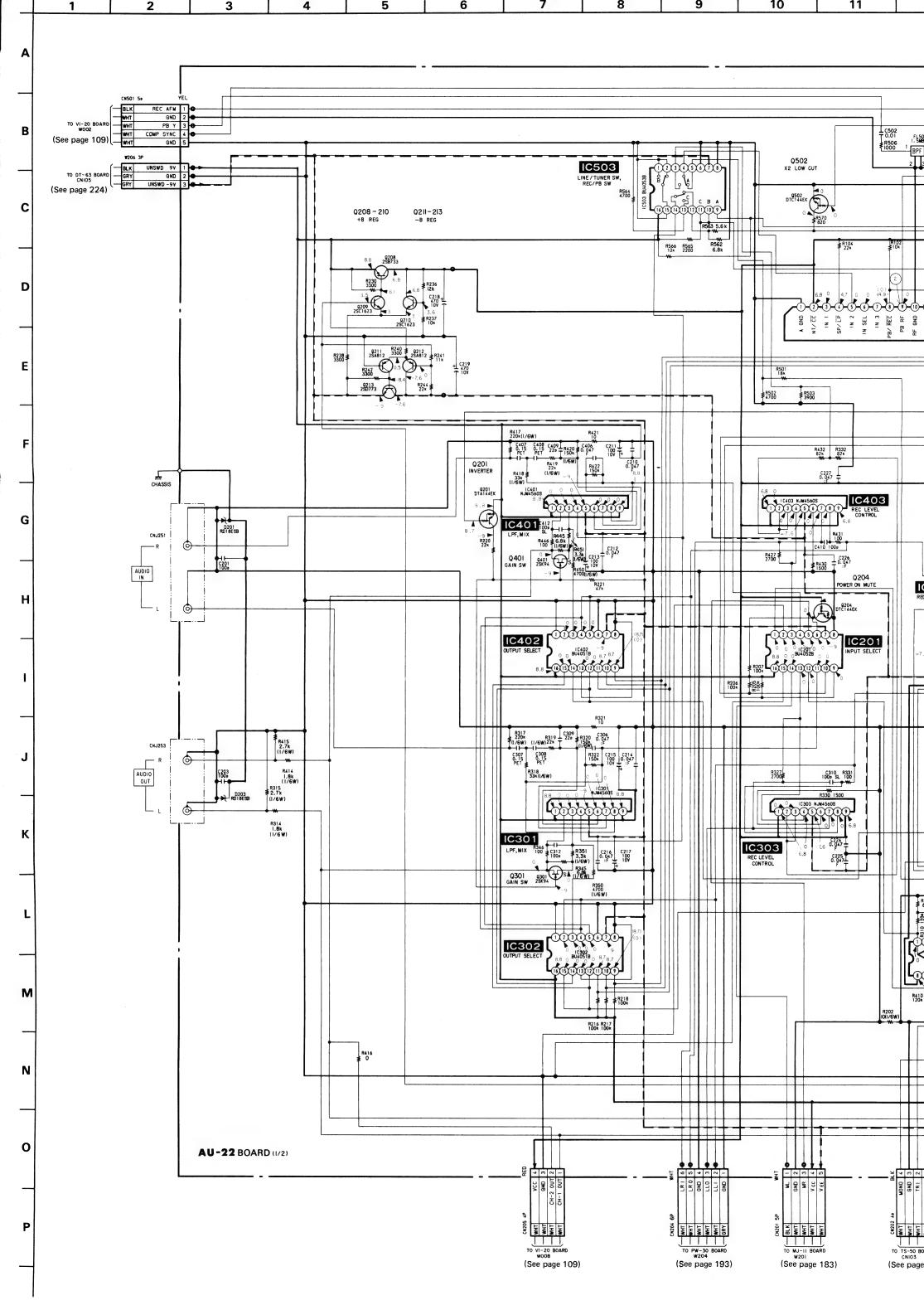


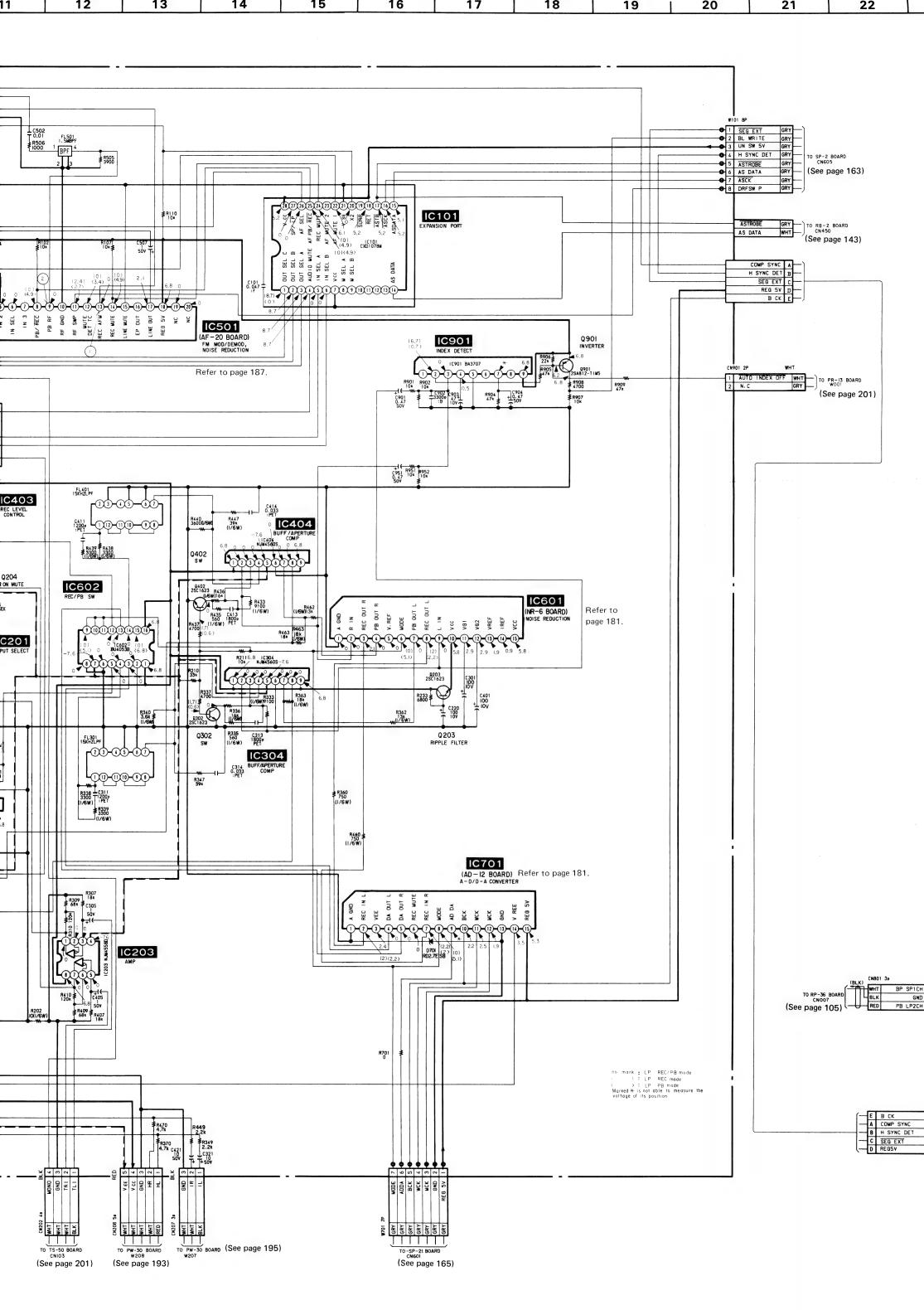


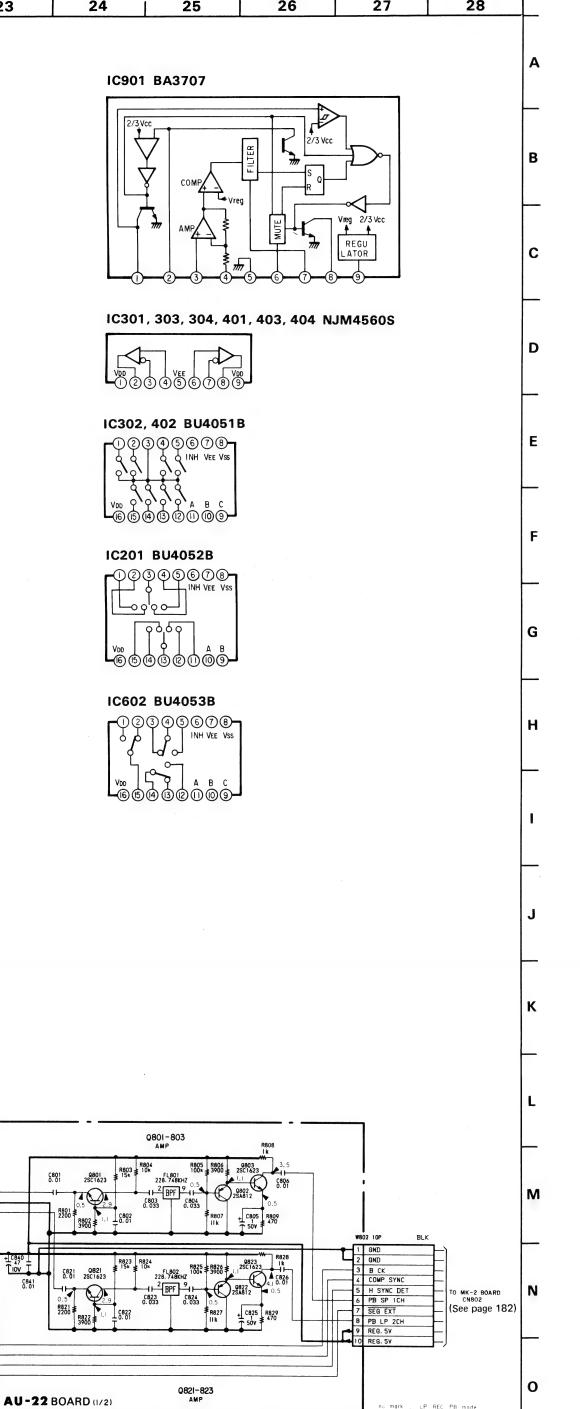
Ref. No. AU-22 BOARD: 7,000 series











22

ige 143)

R-13 BOARD e page 201)

0ARD (BLK) CN801 3p YEL

WHIT BP SP1CH 1
BLK GMD 2
RED PB LP2CH 3

E B CK A COMP SYNC B H SYNC DET C SEG EXT
D REGSV

23

Note:

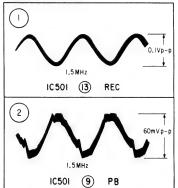
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF: $\mu \mu F$. 50V or less are not indicated except for electrolytice. and
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : panel designation.
- △ : internal component.
- : B + bus.
- --- : B bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production

When indicating parts by reference number, please include the board name.

Signal path

AU-22 BOARD

P



• O- : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

♦ ⊗ : Through hole.

 \bullet $\ensuremath{\square}$: Pattern from the side which enables seeing.

Pattern of the rear side.

: B+ pattern from the side which enables seeing.

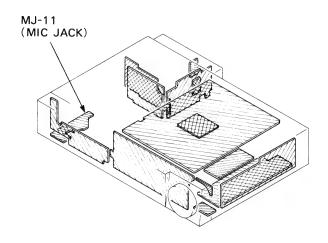
When indicating parts by reference number, please include the board name.

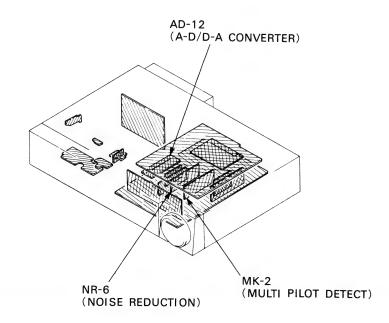
Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side)

the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



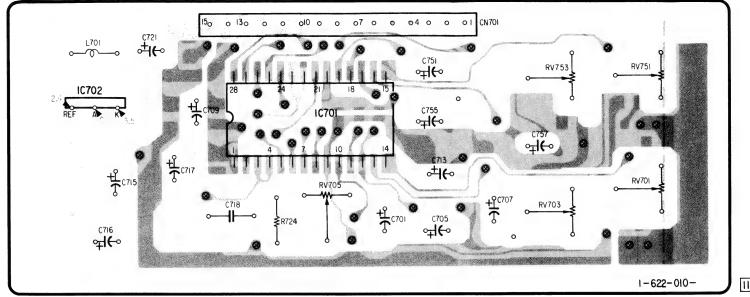


AD-12(A-D/D-A CONVERTER), NR-6(NOISE REDUCTION), MK-2(MULTI PILOT DETECT), MJ-11(MIC JACK) PRINTED WIRING BOARDS

-Ref. No. AD-12 BOARD, NR-6 BOARD, MK-2 BOARD, MJ-11 BOARD: 8,000 series-

IC701

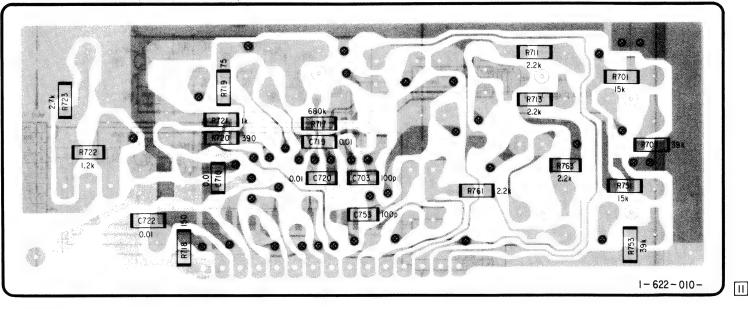
AD -12 BOARD (COMPONENT SIDE)



no mark: LP REC/PB muce

IC701

AD - 12 BOARD (SOLDER SIDE)

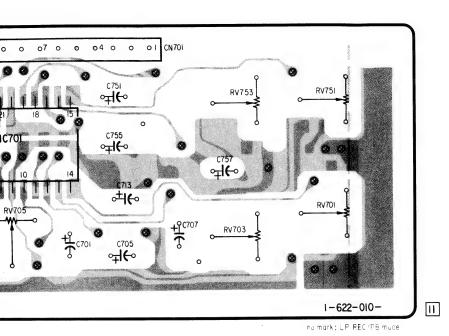


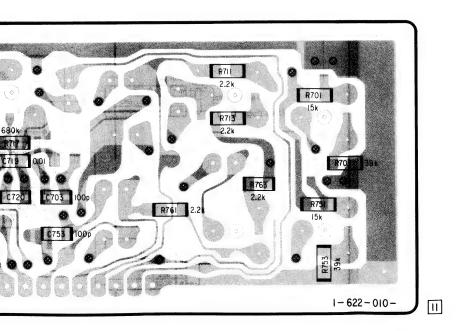
IC601 NR - 6 B

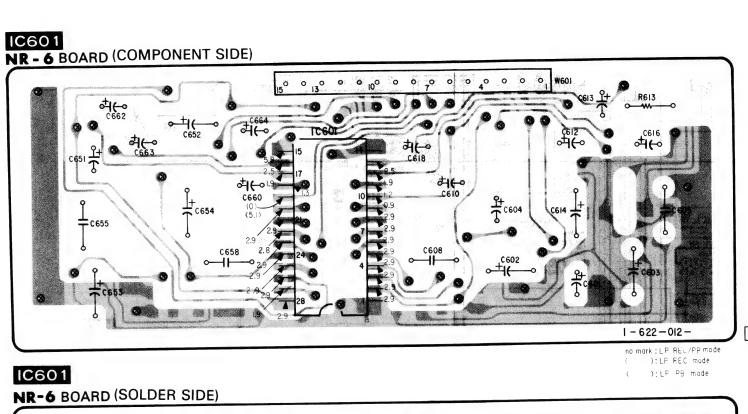
IC601 NR-6 B

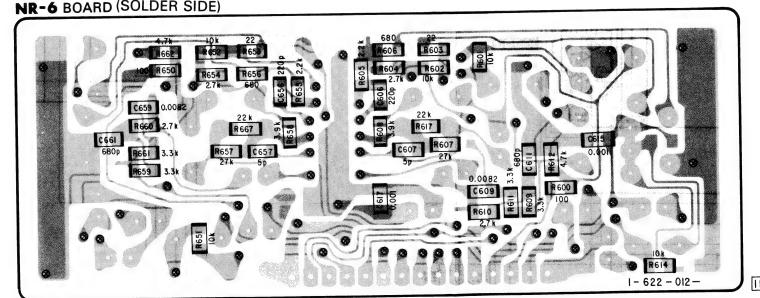
UCTION), MK-2(MULTI PILOT DETECT), MJ-11(MIC JACK) PRINTED WIRING BOARDS

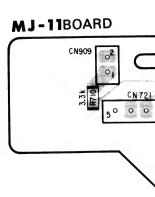
J-11 BOARD: 8, 000 series—

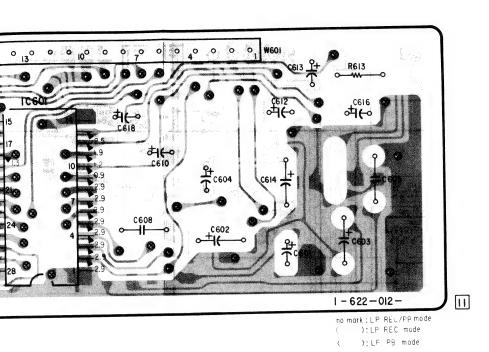


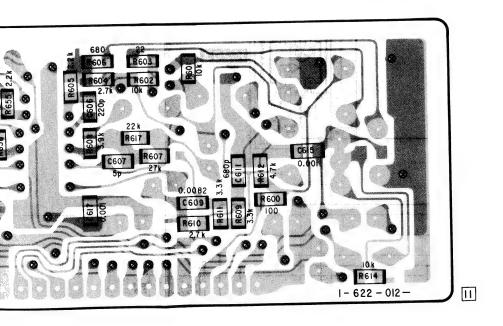


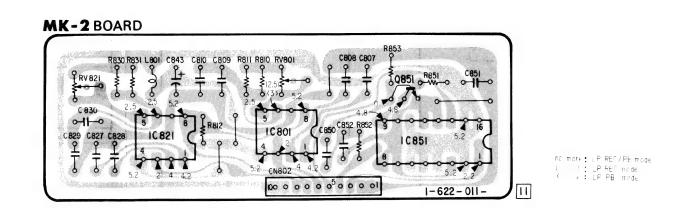


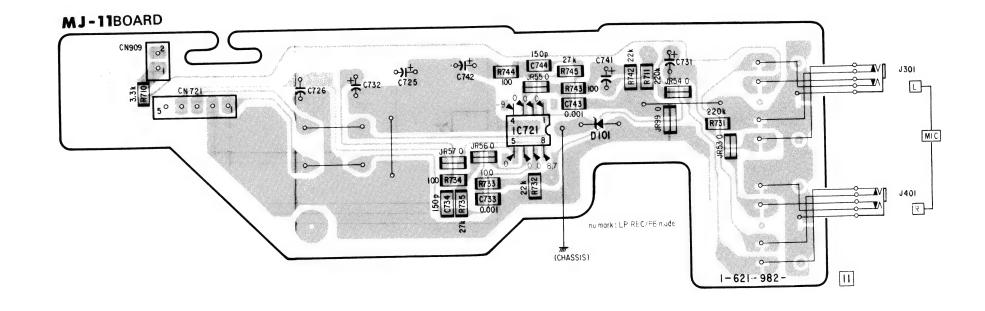


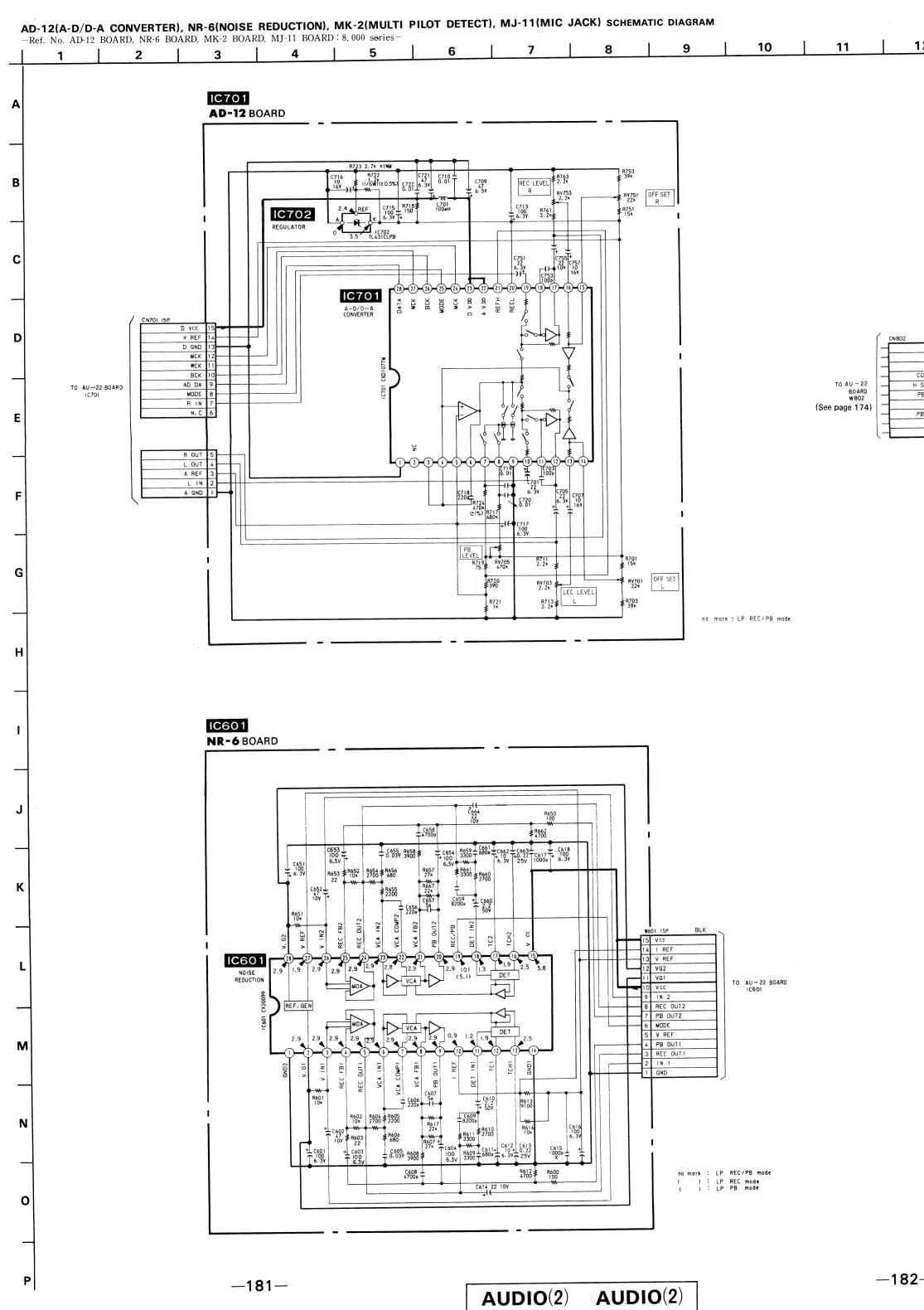


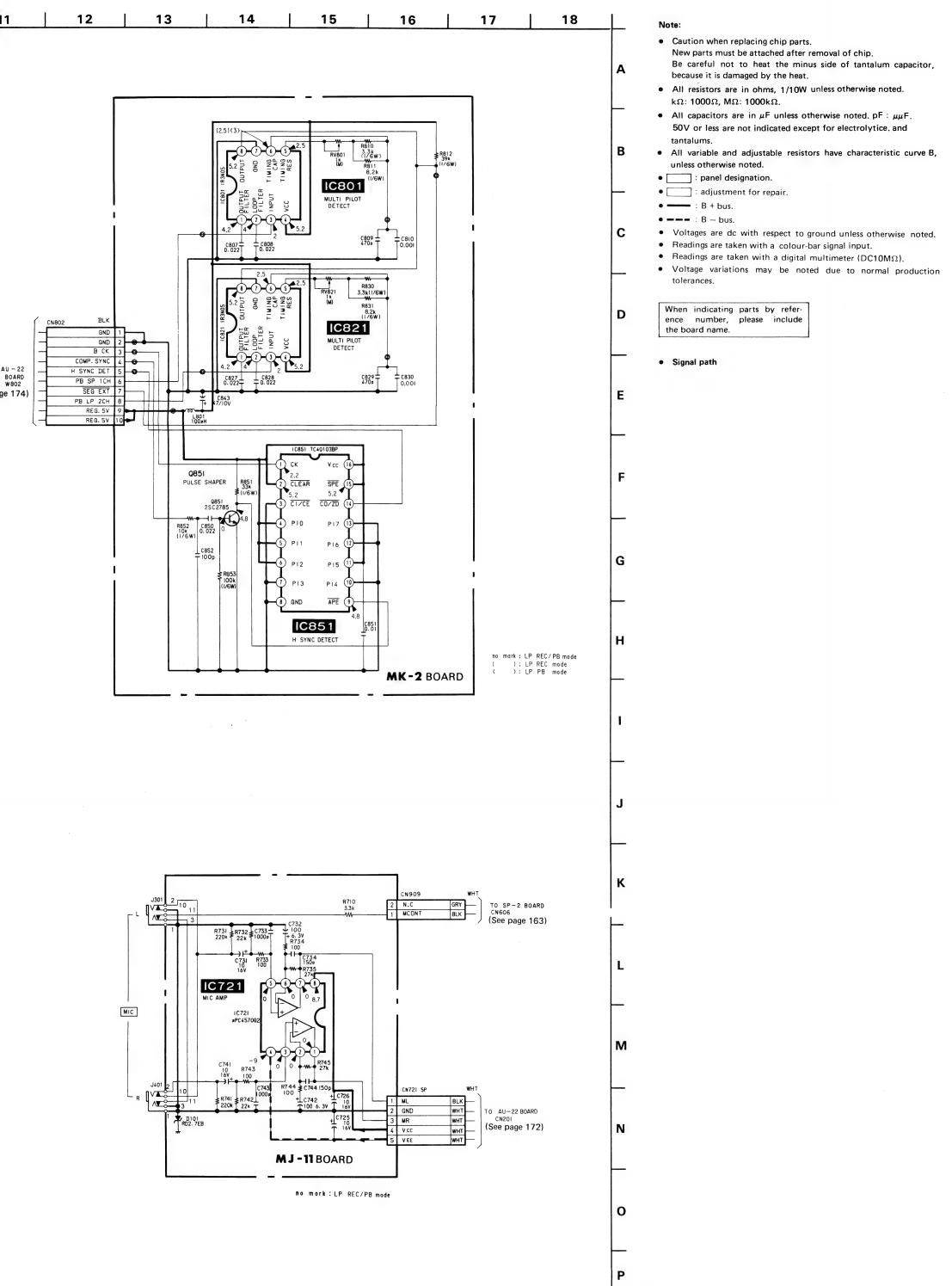






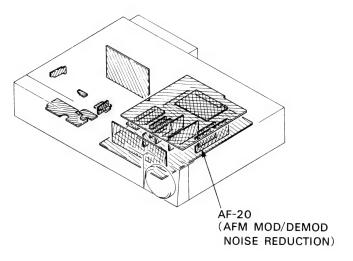






- — : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- : soldering side.
- Pattern of conductor and silver ilectrode of soldering side.
- B+ Pattern.
- Digital transistor (AF-20:Q501,Q503) transistor with resistor refer to the AF-20 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

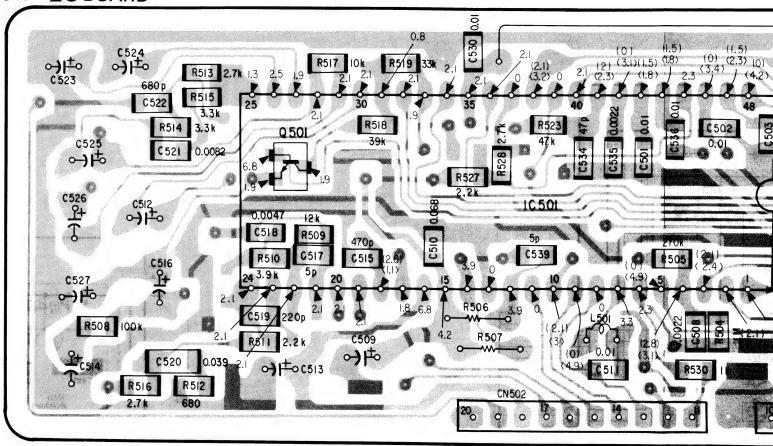


AF-20(AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

-Ref. No. AF-20 BOARD: 8,000 series-

IC501

AF-20 BOARD



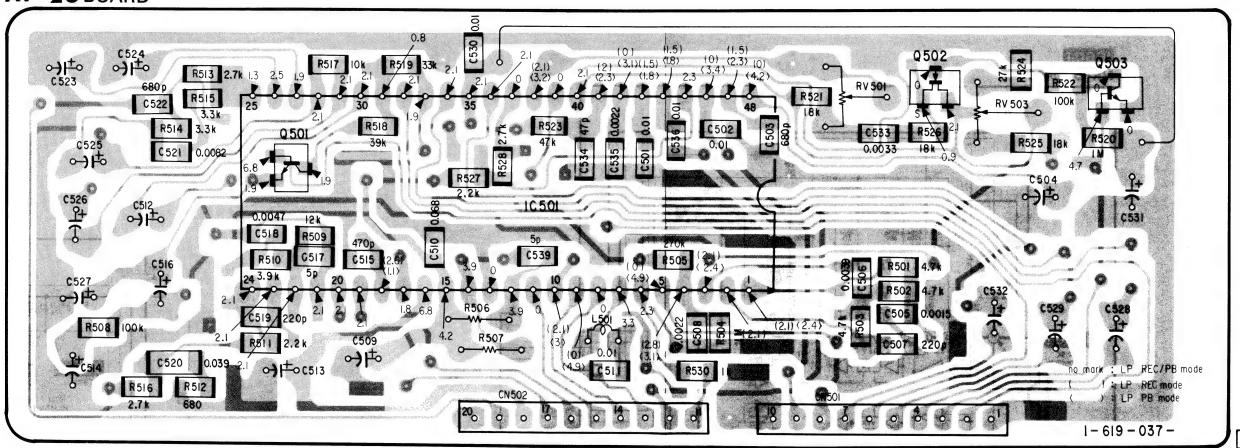
AF-20(AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

-Ref. No. AF-20 BOARD: 8,000 series-

IC501

tor refer

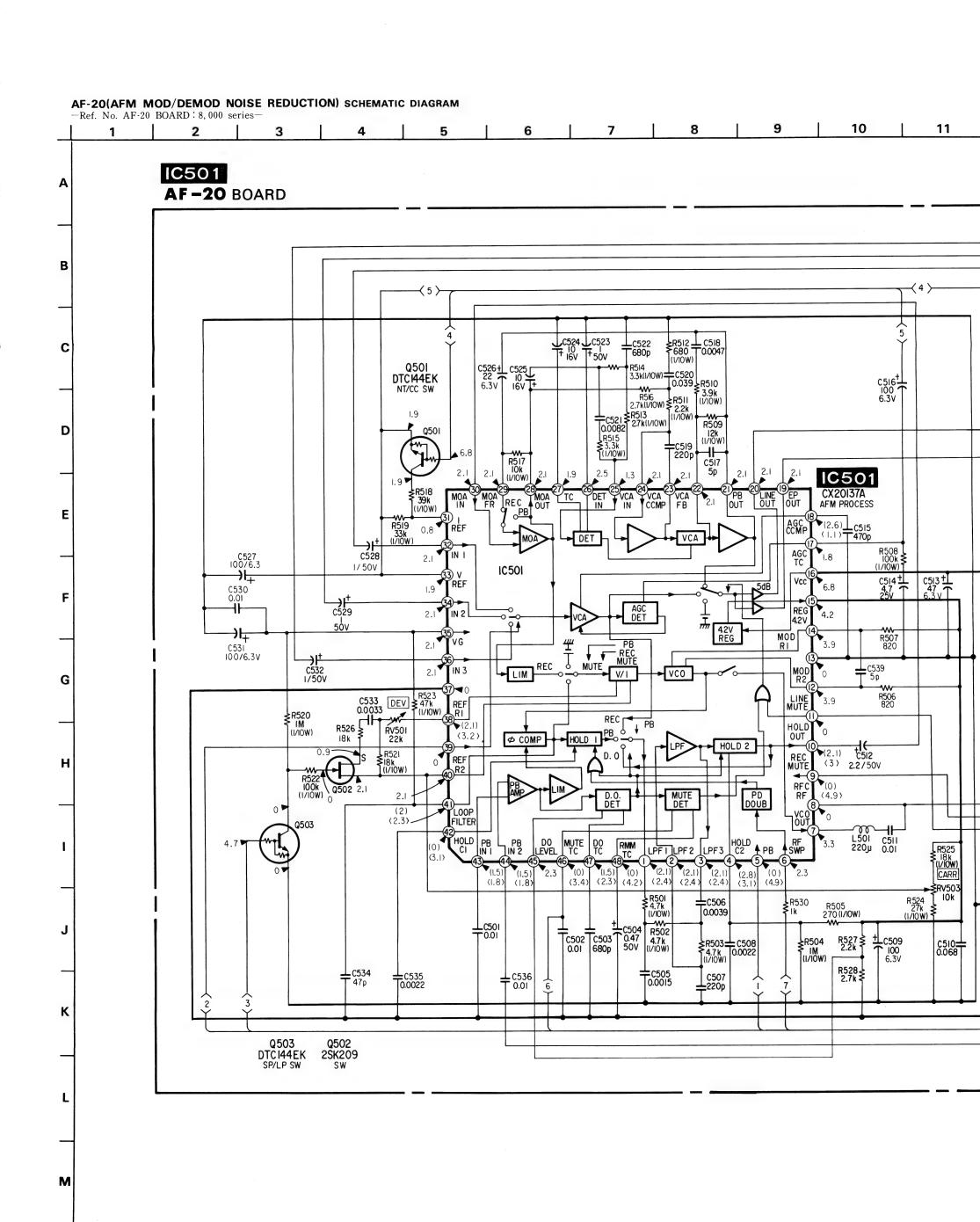
AF-20 BOARD

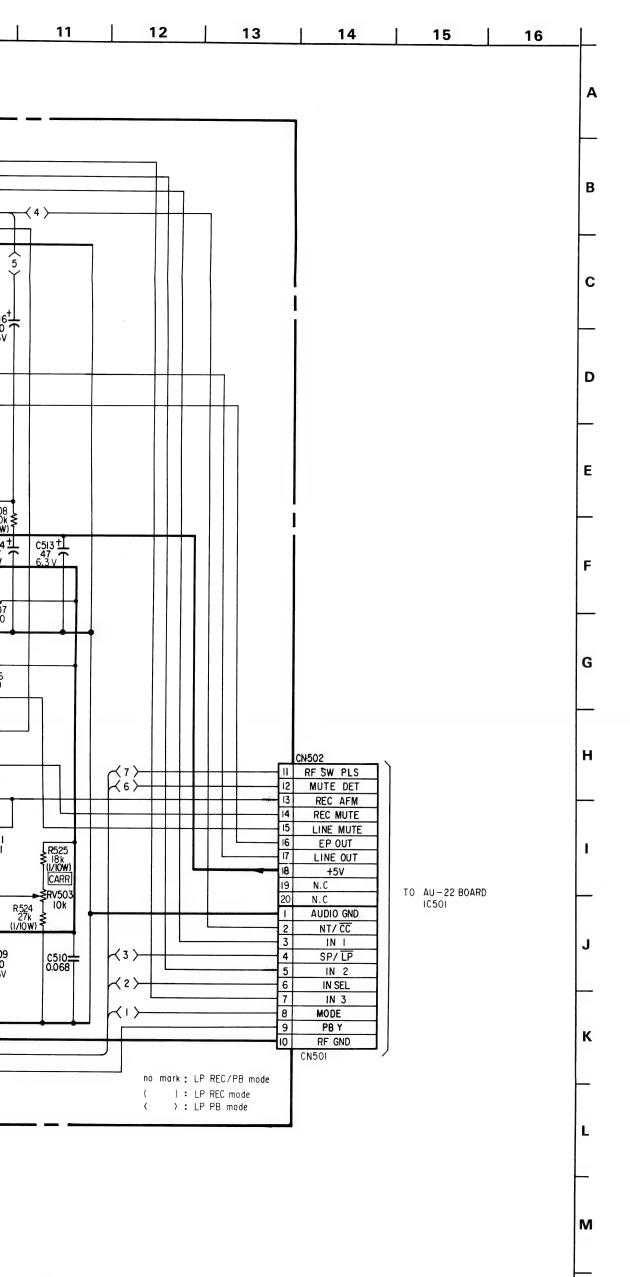


13

—185—

-186-





- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted, pF: μμF.
 50V or less are not indicated except for electrolytice, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- _____: adjustment for repair.
- ---- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

Signal path

• O- : indicates a lead wire mounted on the component side.

• • - : indicates a lead wire mounted on the printed side.

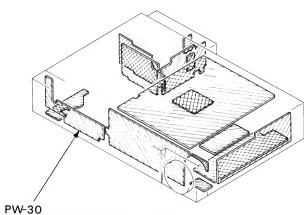
ullet \otimes : Through hole.

• : soldering side.

component side

• : B+ Pattern.

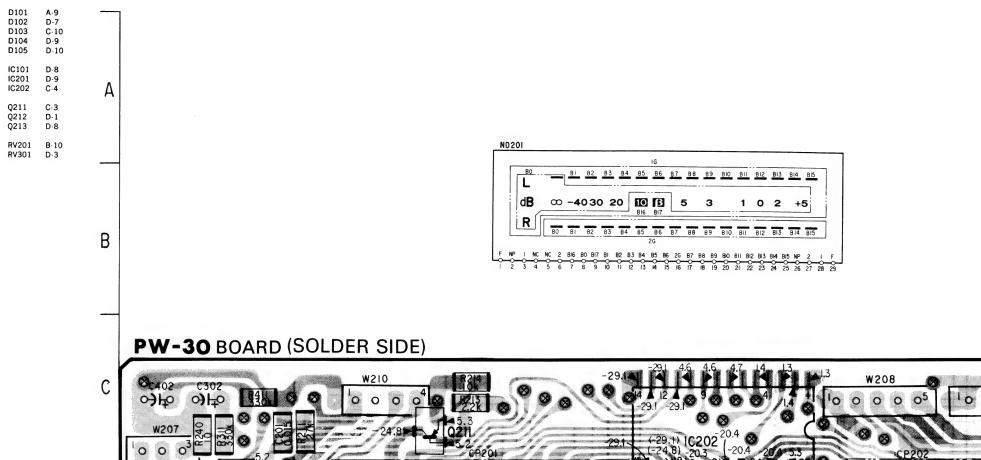
When indicating parts by reference number, please include the board name.

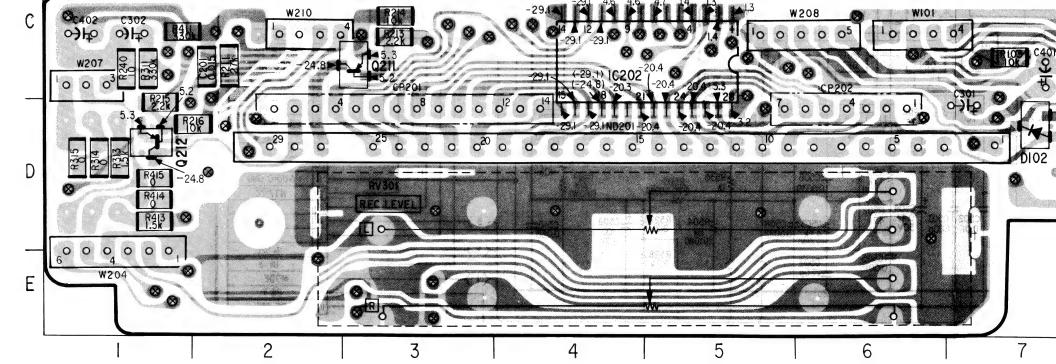


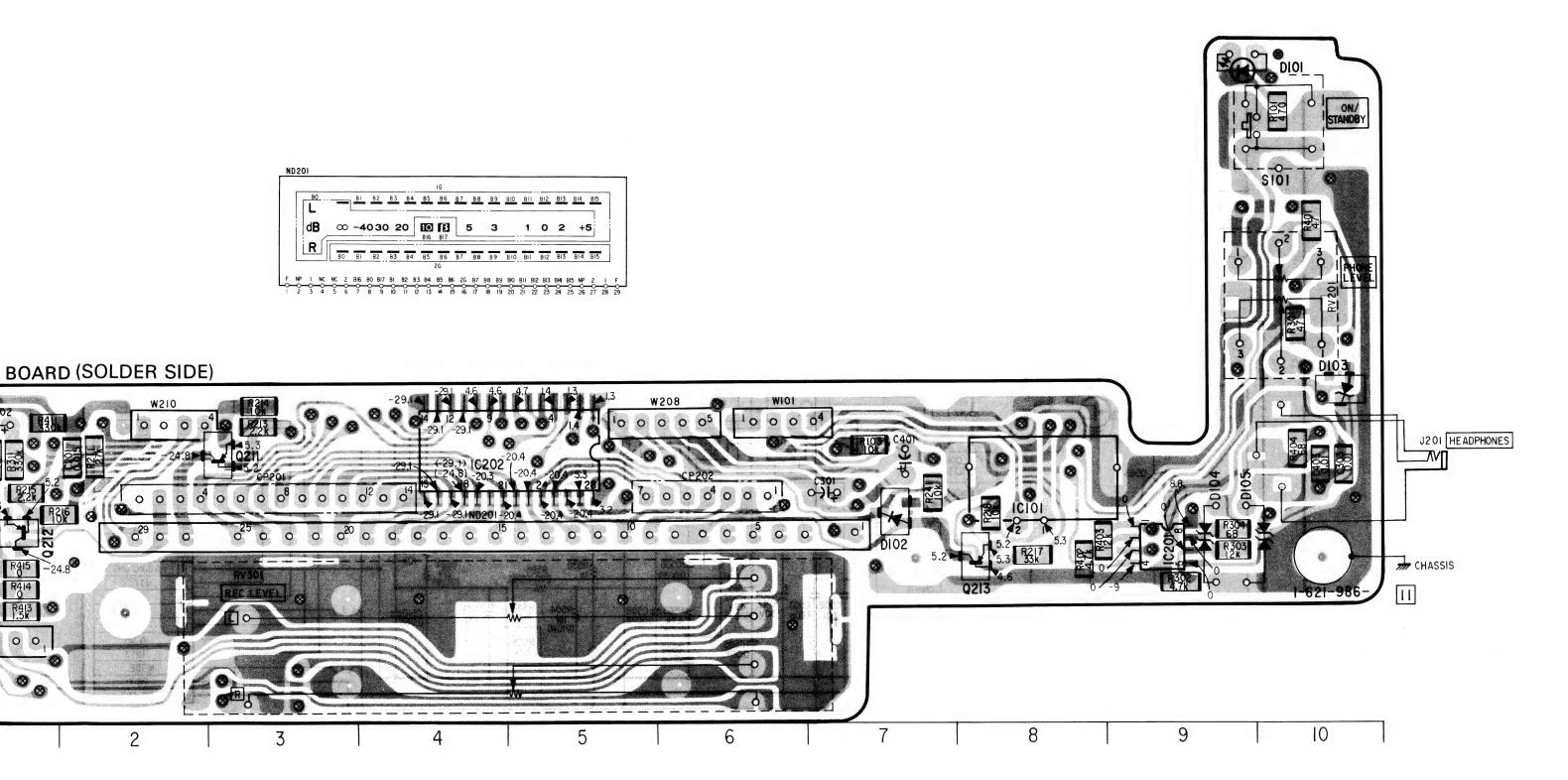
(LEVEL METER/VOLUME/JACK/ REMOTE CONTROL RECEIVER)

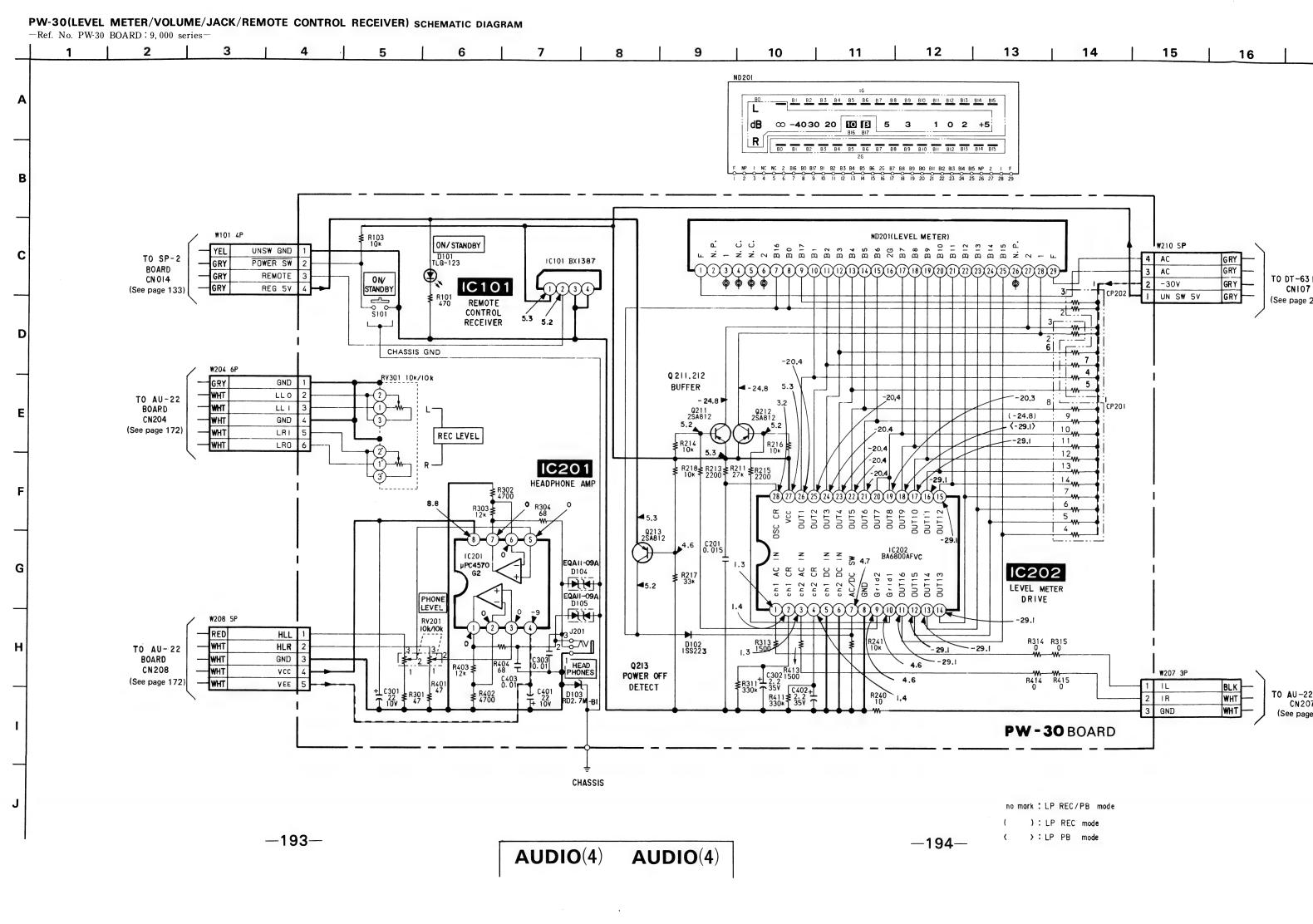
PW-30(LEVEL METER/VOLUME/JACK/REMOTE CONTROL RECEIVER) PRINTED WIRING BOARD

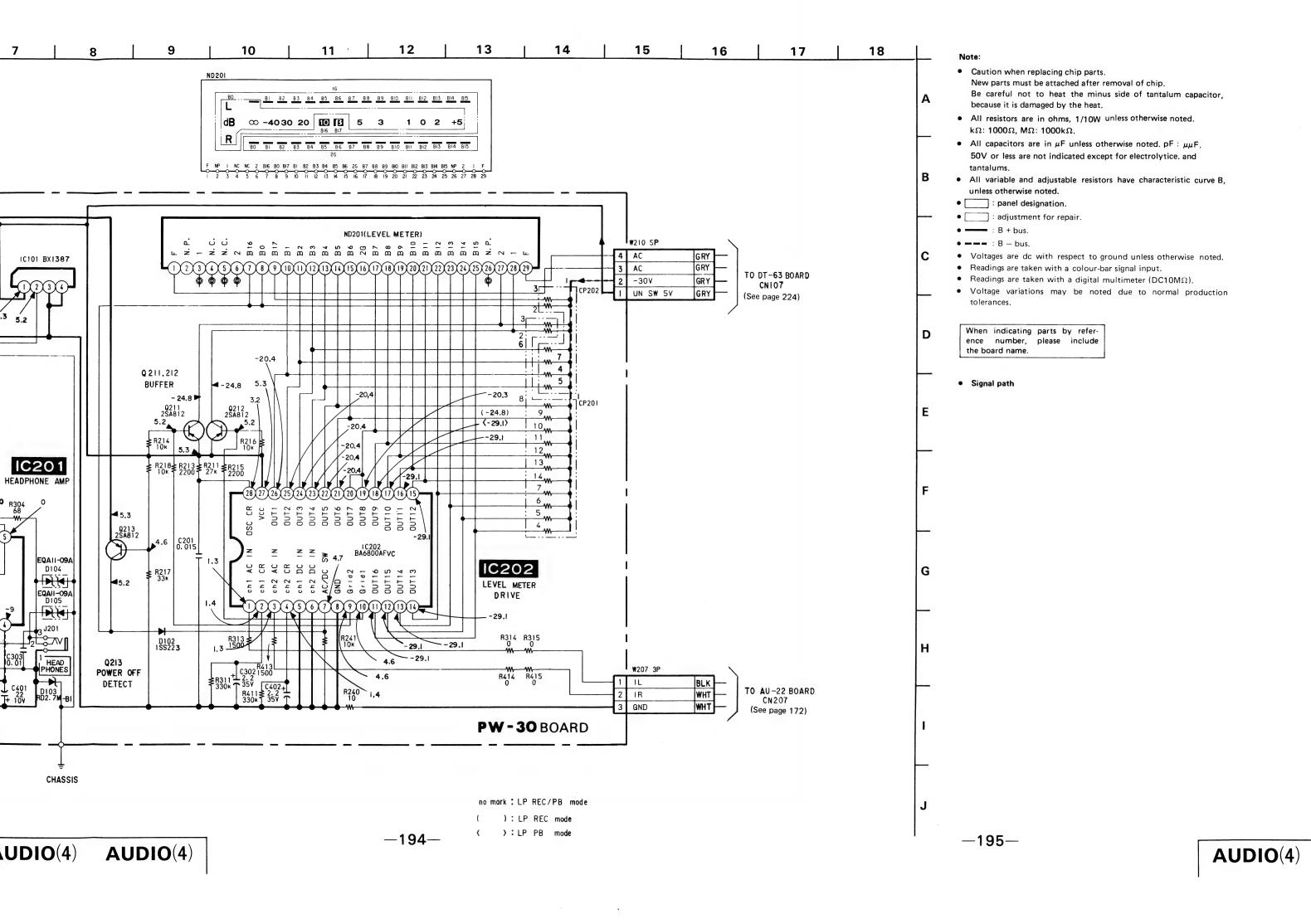
-Ref. No. PW-30 BOARD: 9,000 series-











• O- : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

: B+ Pattern,

• Digital transistor (TU-83:Q005,Q006,Q007,TS-50:Q018) transistor with resistors.

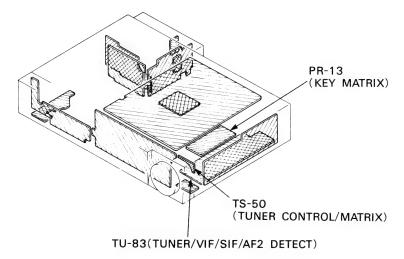
Refer to the TU-83,TS-50 boards schematic diagram for digital transistor.

D101

IC101 IC102 IC103 IC104

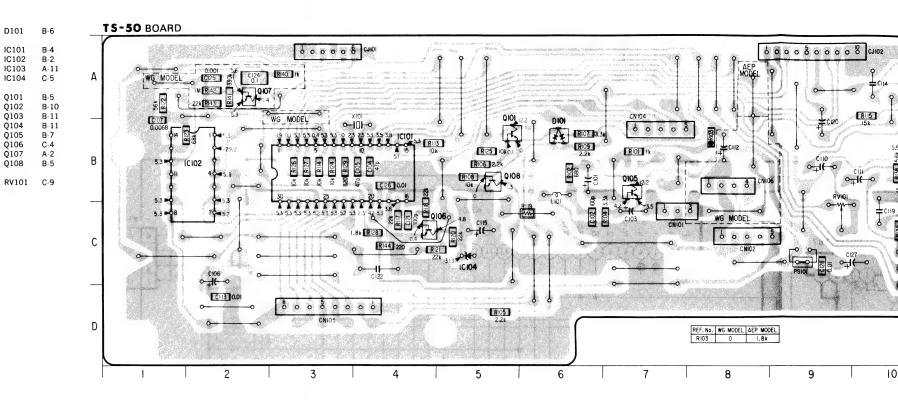
Q101 Q102 Q103 Q104 Q105 Q106 Q107 Q108

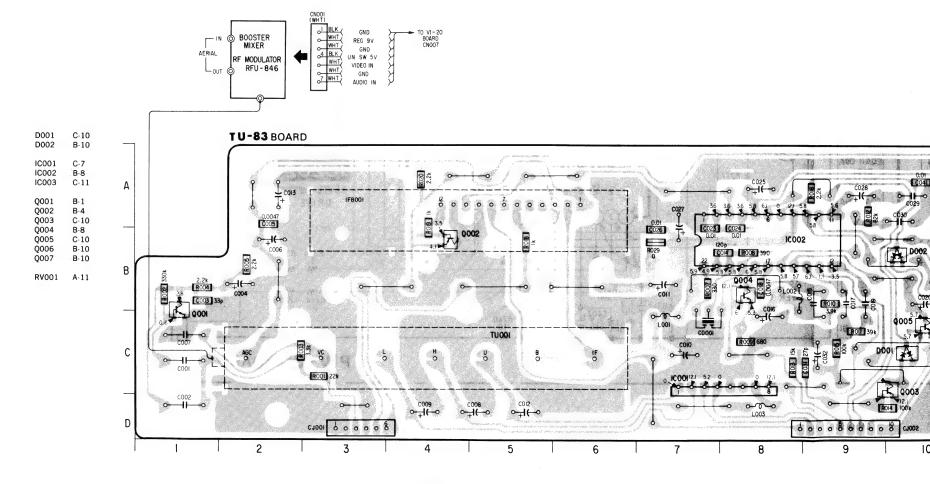
When indicating parts by reference number, please include the board name.



TU-83(TUNER/VIF/SIF/AF2 DETECT), TS-50(TUNER CONTROL/MATRIX), PR-13(KEY MATRIX) PRINTED WIRING BOARDS

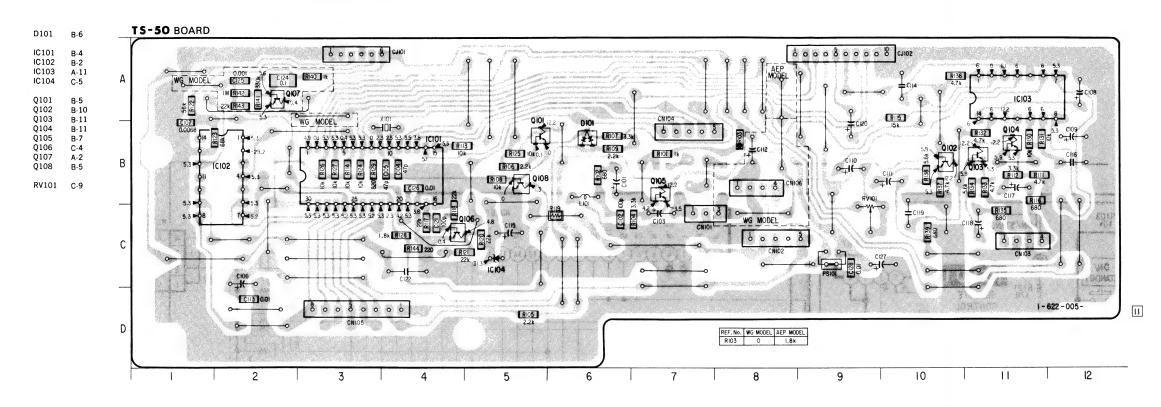
-Ref. No. TU-83 BOARD, TS-50 BOARD: 10,000 series, PR-13 BOARD: 10,500 series-

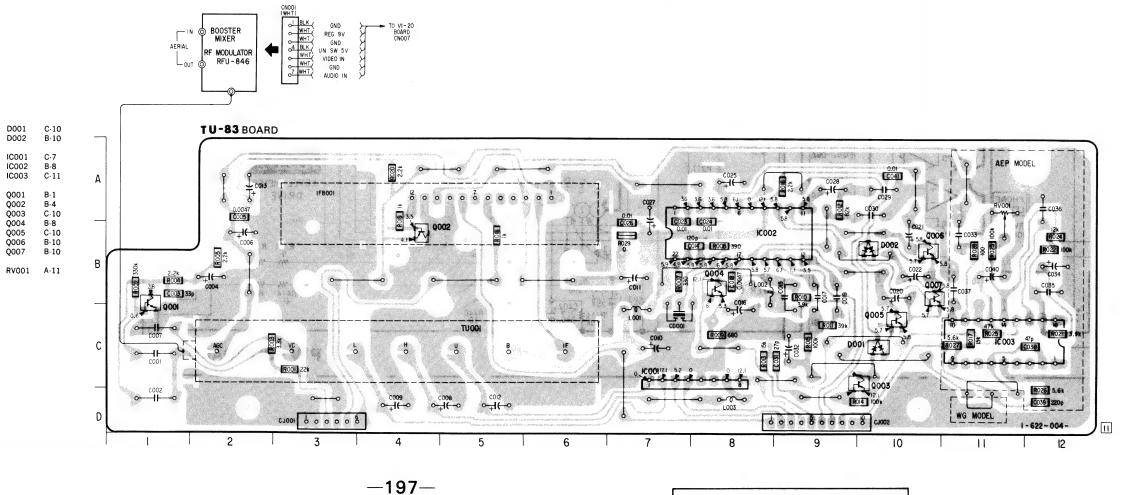


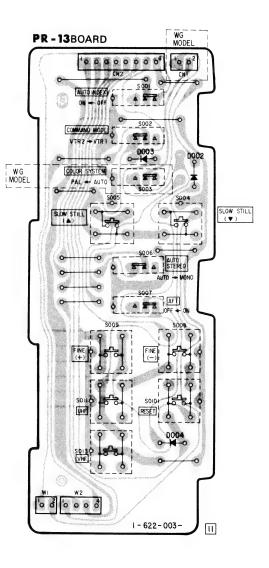


TU-83(TUNER/VIF/SIF/AF2 DETECT), TS-50(TUNER CONTROL/MATRIX), PR-13(KEY MATRIX) PRINTED WIRING BOARDS

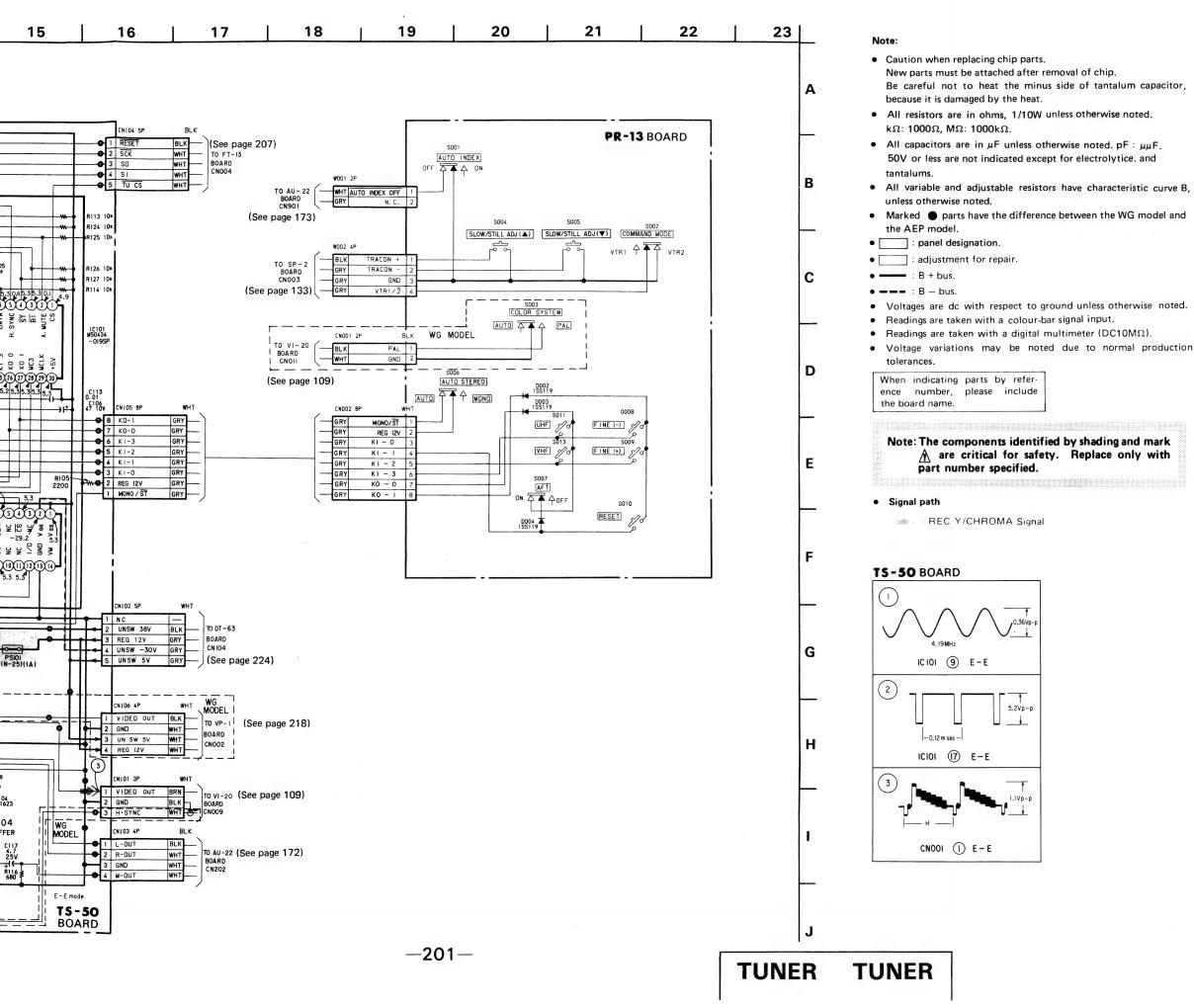
-Ref. No. TU-83 BOARD, TS-50 BOARD: 10,000 series, PR-13 BOARD: 10,500 series-







TUNER TUNER **—198**—



-202-

Note:

: indicates a lead wire mounted on the component side.
 : indicates a lead wire mounted on the printed side.

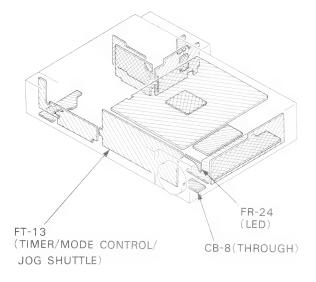
● ⊗ : Through hole.

• : soldering side.

: component sid

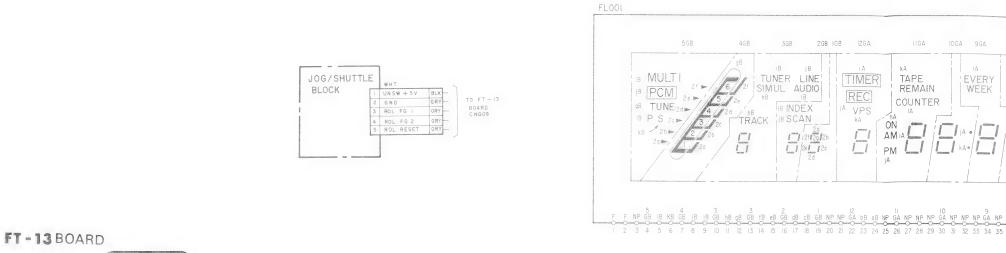
• B+ Pattern.

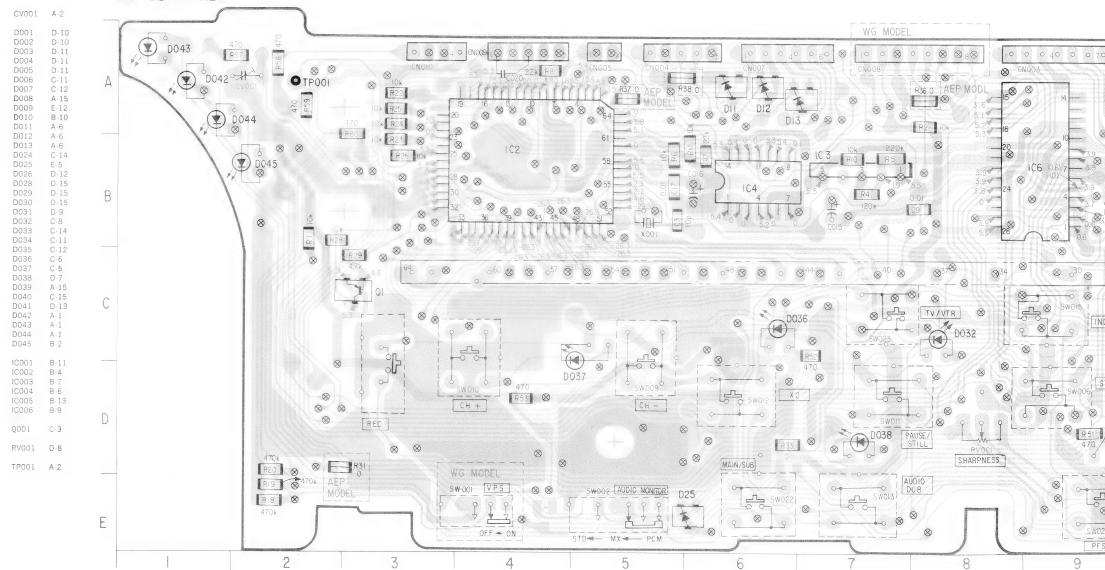
When indicating parts by reference number, please include the board name.

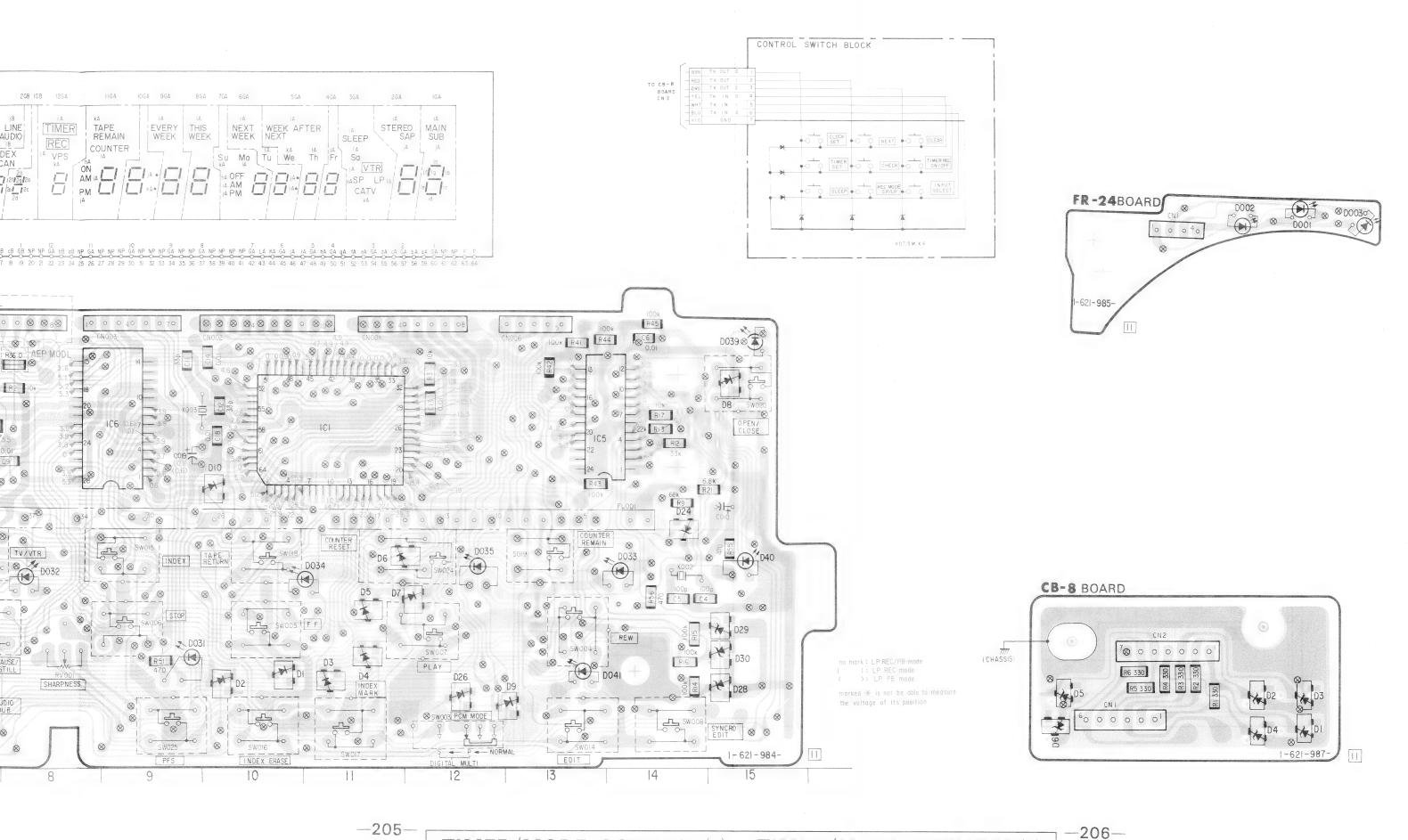


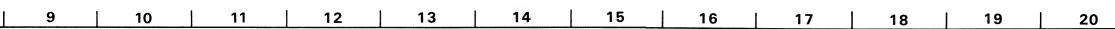
FT-13(TIMER/MODE CONTROL/JOG SHUTTLE), FR-24(LED), CB-8(THROUGH) PRINTED WIRING BOARDS

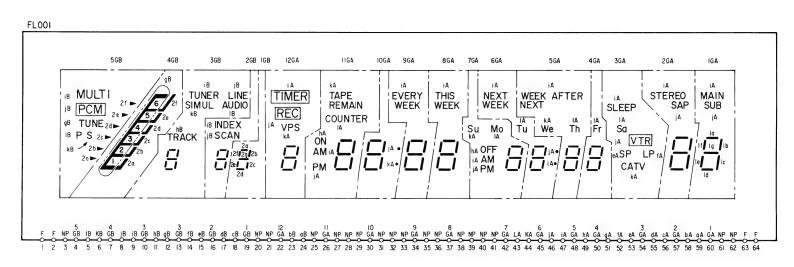
-Ref. No. FT-13 BOARD: 11,000 series, FR-24 BOARD: 11,200 series, CB-8 BOARD: 11,400 series-

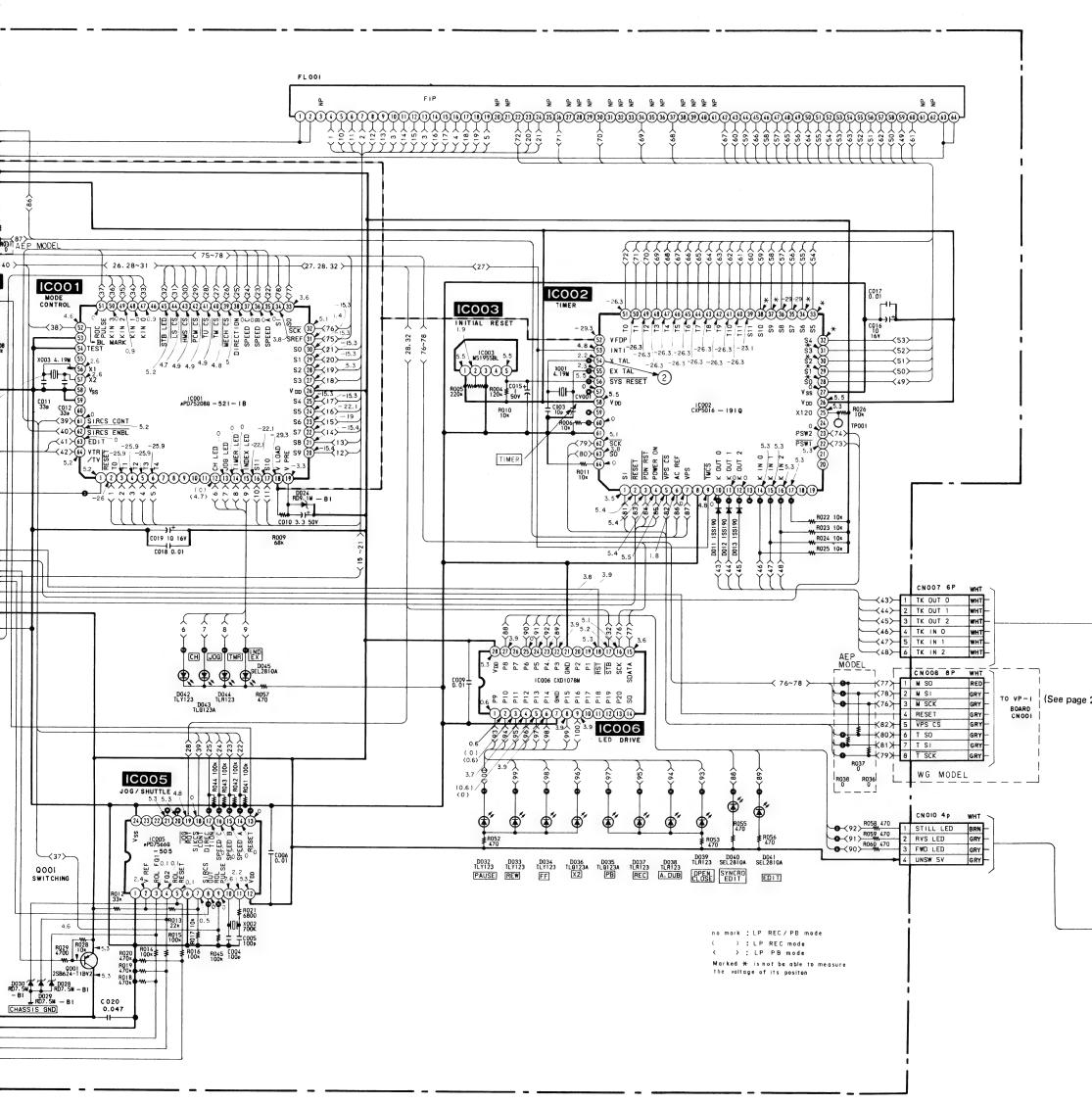


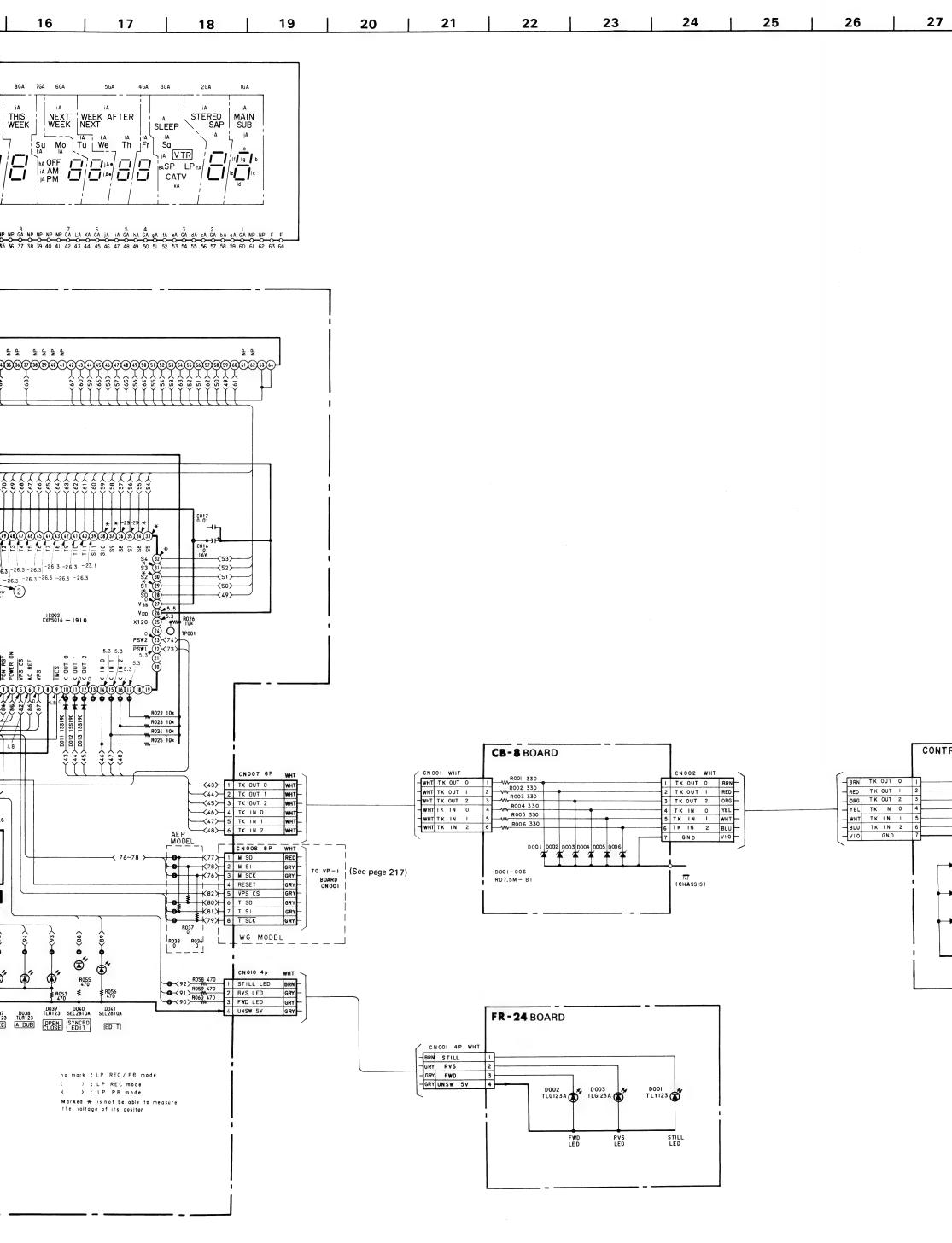


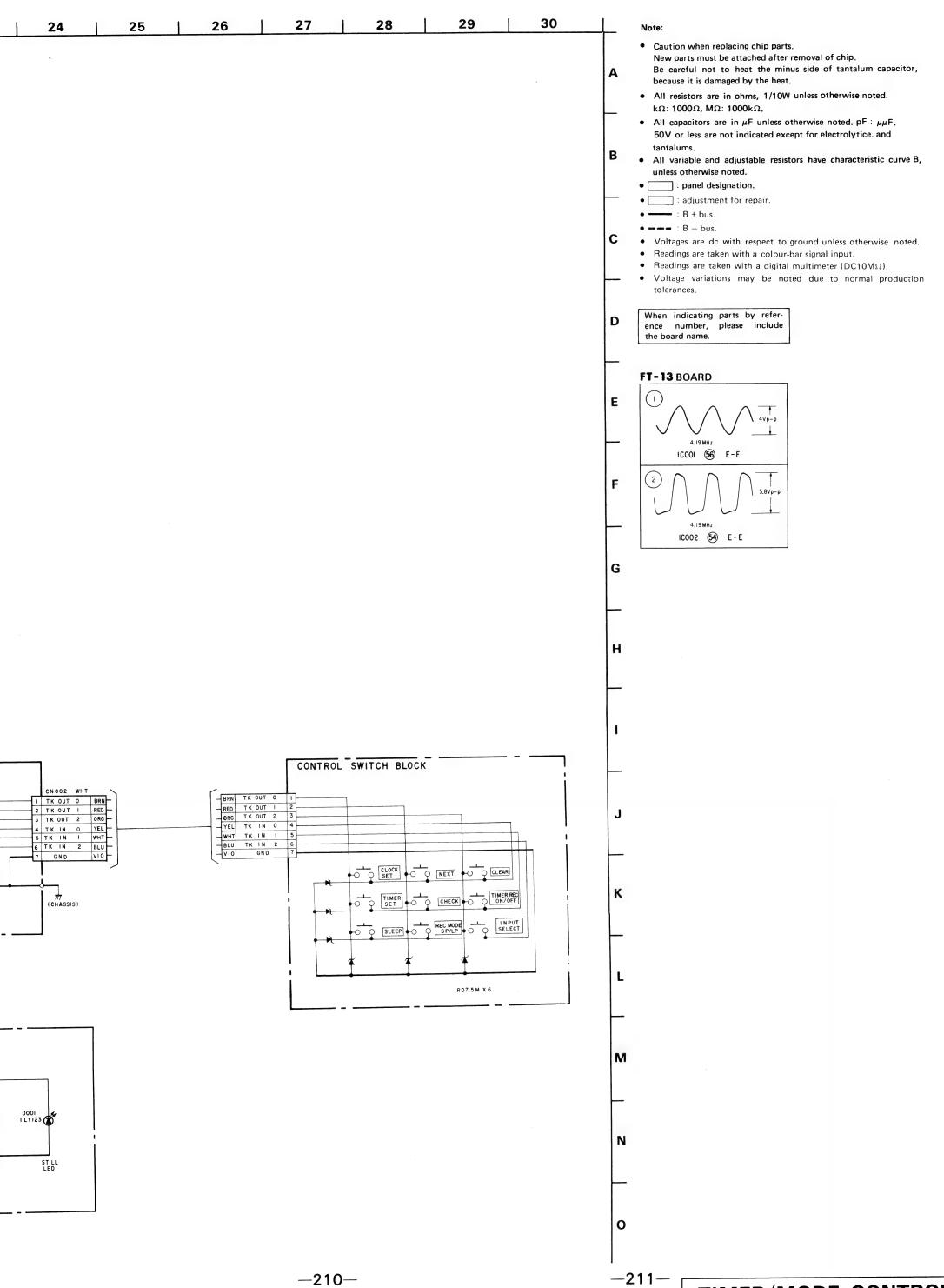












Note:

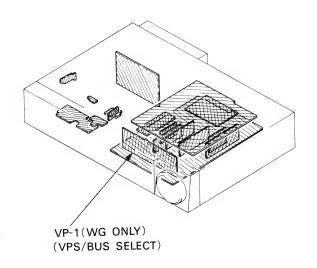
 $\bullet \ \bigcirc - \ :$ indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

soldering side.

• B+ Pattern.

When indicating parts by reference number, please include the board name.

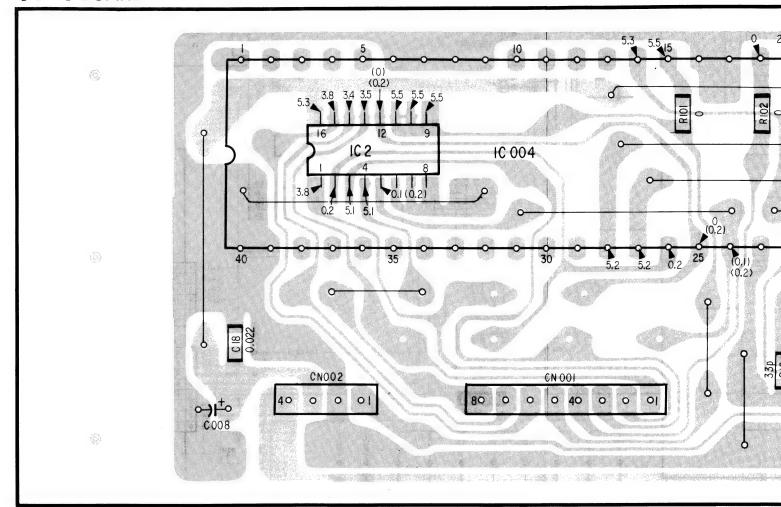


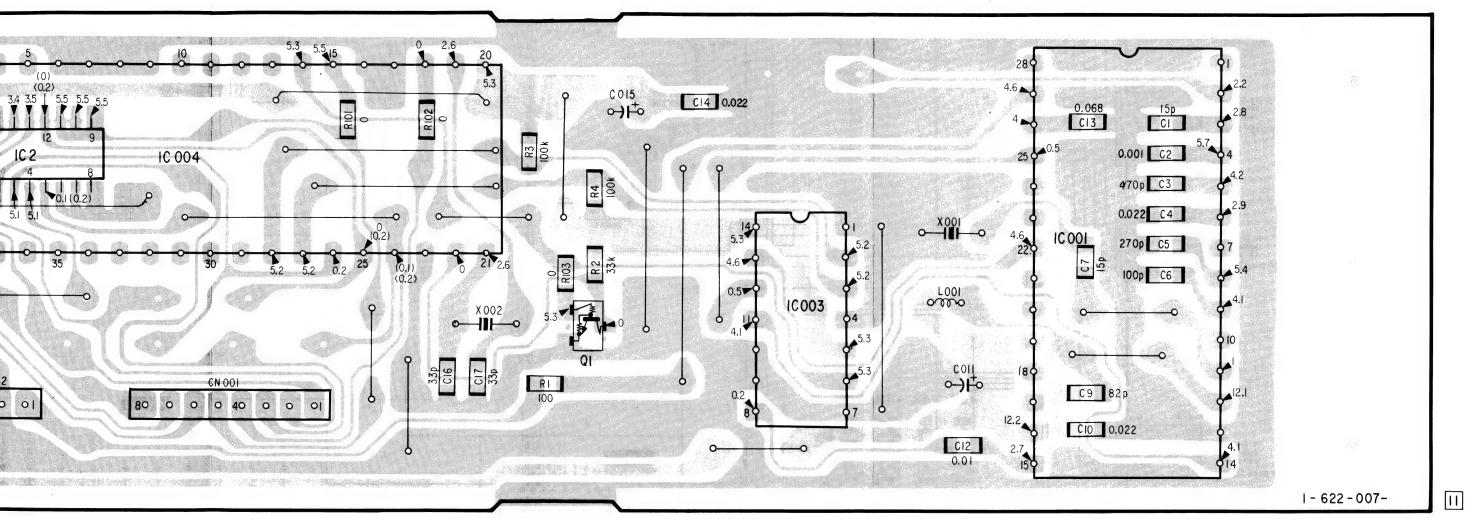
VP-1(VPS/BUS SELECT) PRINTED WIRING BOARD

(WG MODEL)

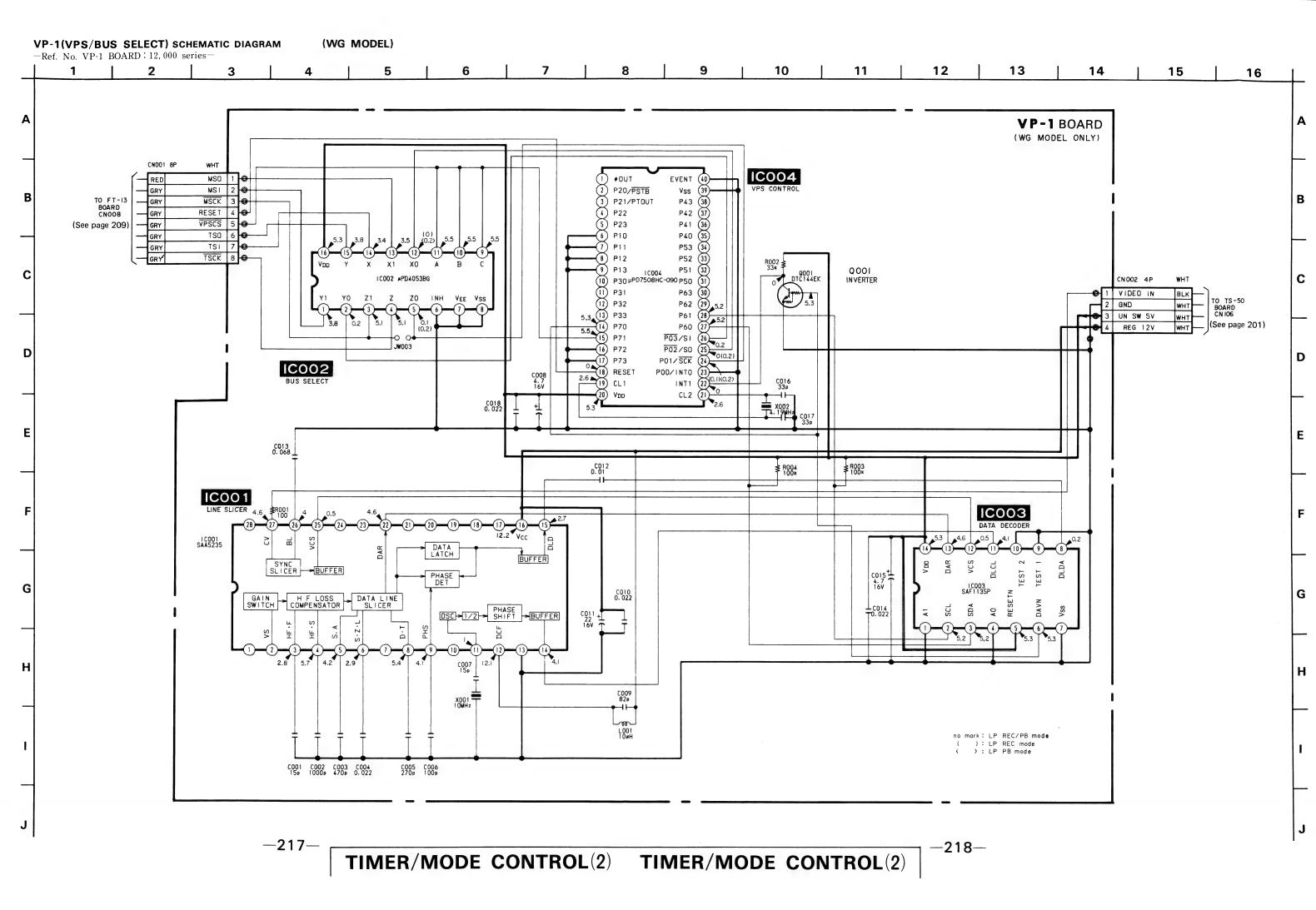
-Ref. No. VP-1 BOARD: 12,000 series-

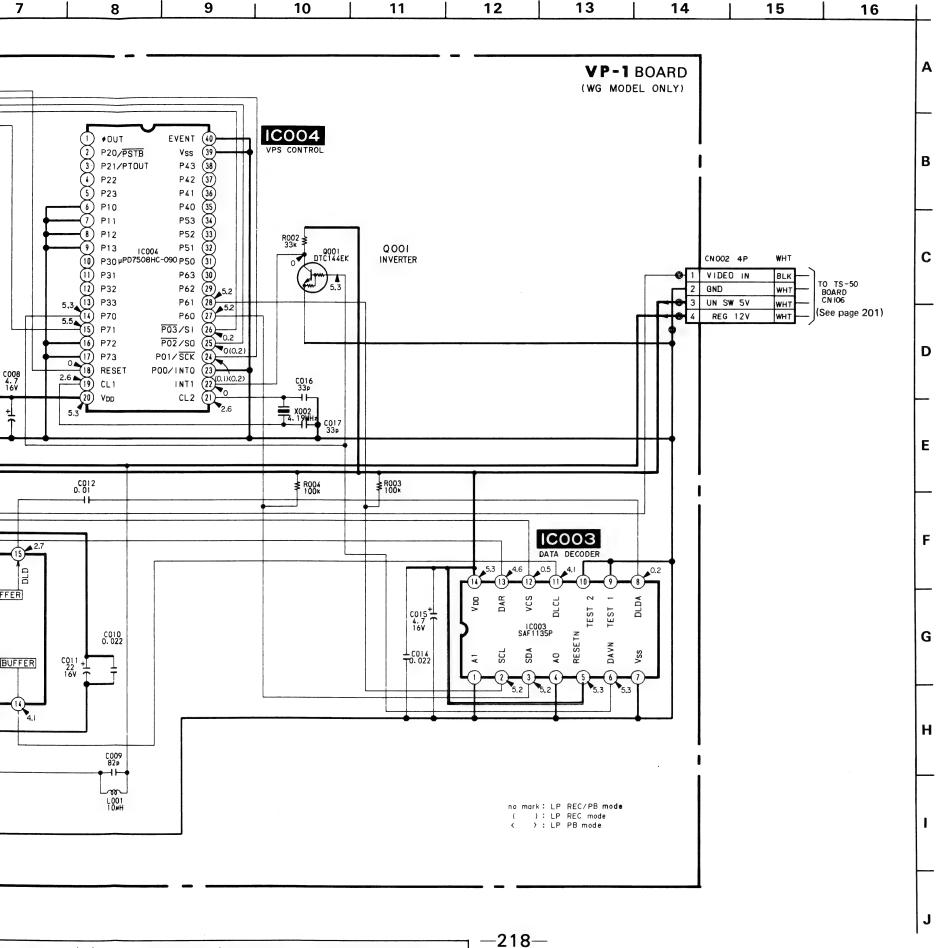
VP-1 BOARD (WG MODEL)





no mark: LP REC / PB mode (): LP REC mode 〈): LP PB mode





Note

- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
 kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
 50V or less are not indicated except for electrolytice. and
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- --- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

DR-35(SWITCHING REGULATOR), DT-63(POWER SUPPLY), DL-15(REGULATOR), DO-1(REGULATOR), DS-16(POWER SUPPLY) PRINTED WIRING BOARDS -Ref. No. DR-35 BOARD, DT-63 BOARD, DL-15 BOARD, DO-1 BOARD, DS-16 BOARD: 13,000 series—

Note:

• O : indicates a lead wire mounted on the component side.

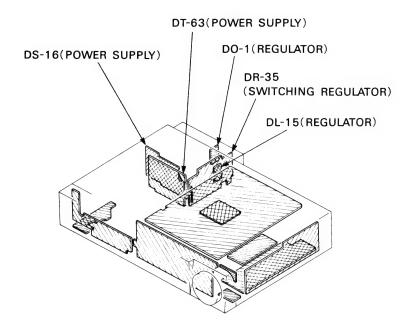
• • : indicates a lead wire mounted on the printed side.

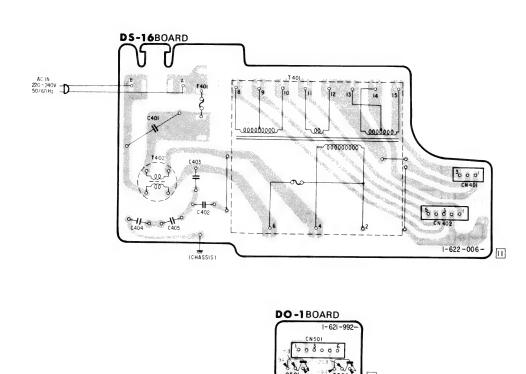
• soldering side.

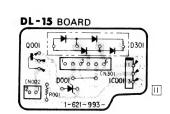
• : B+ Pattern.

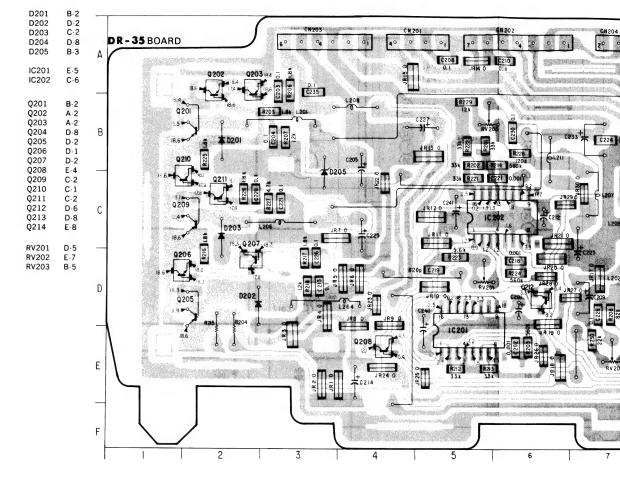
Digital transistor (DR-35:Q208,Q212,Q213,Q214,DL-15:Q001) transistor with resistors.

Refer to the DR-35,DL-15 boards schamatic diagram for digital transistor.

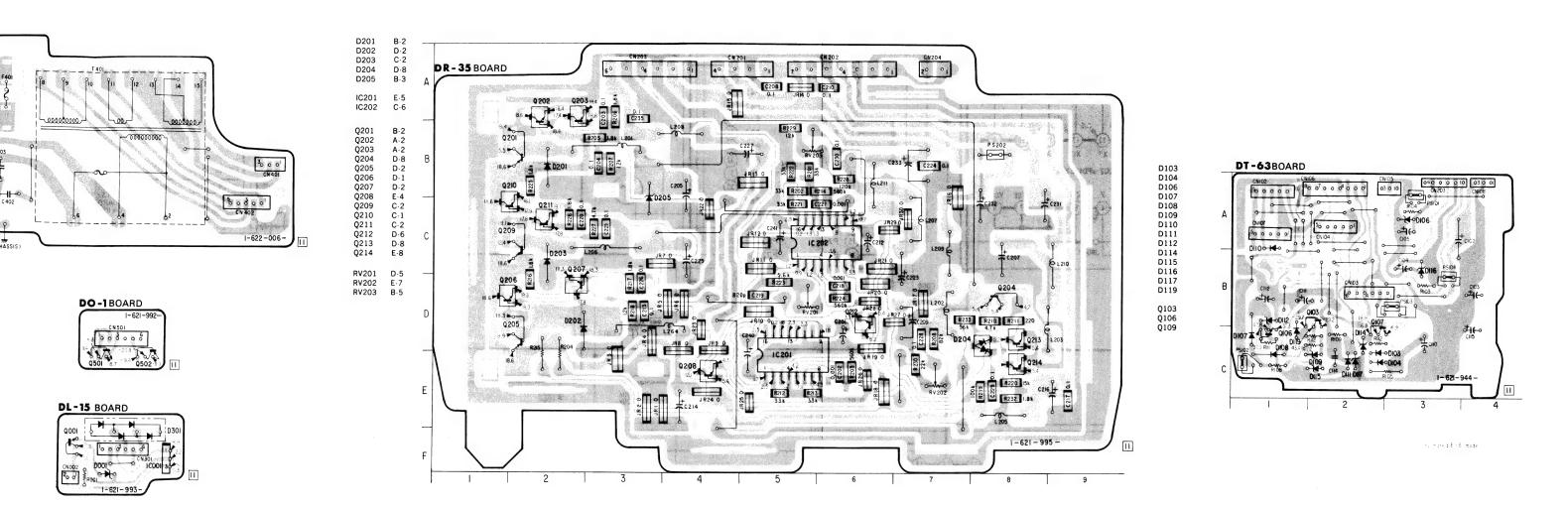


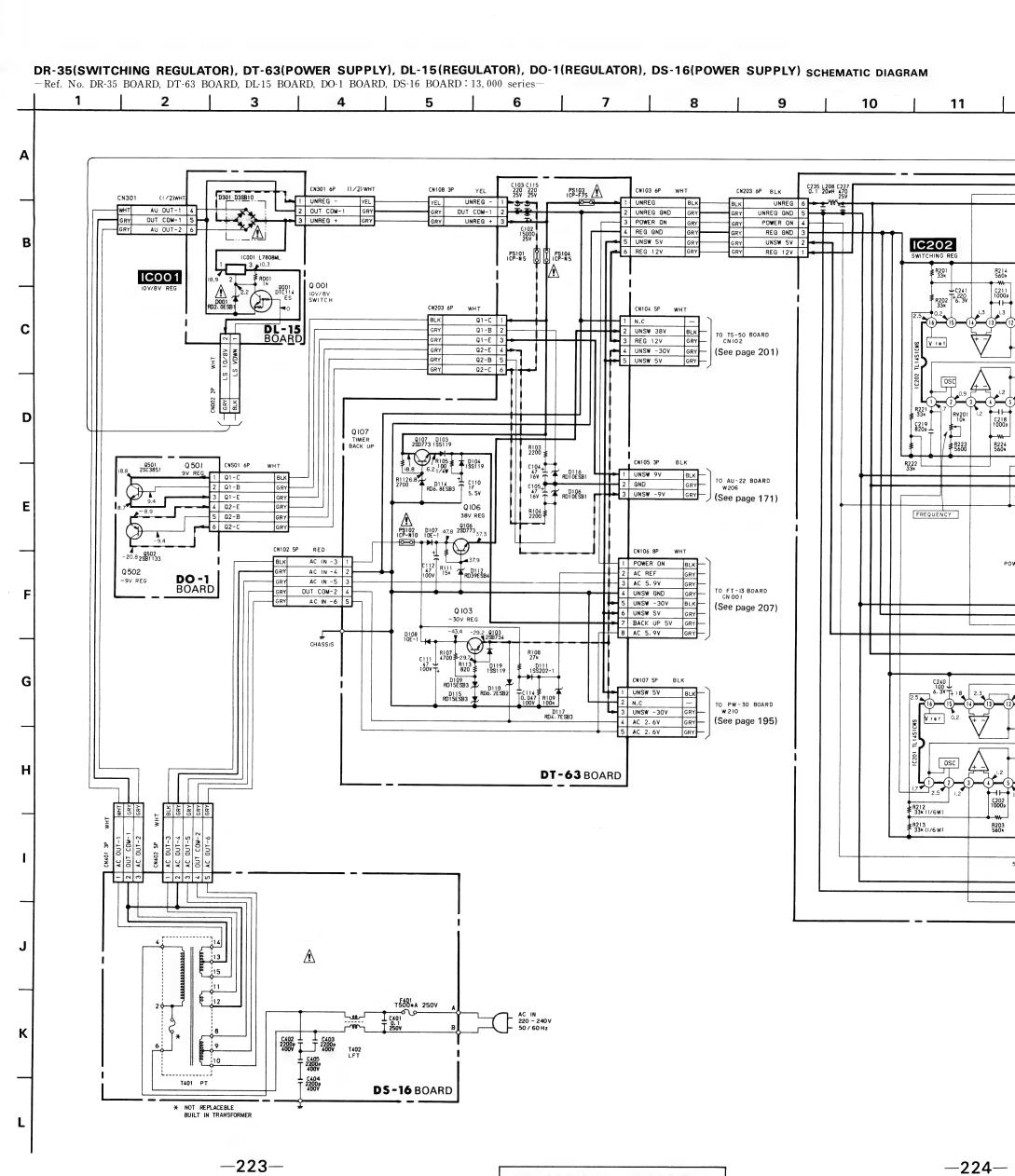


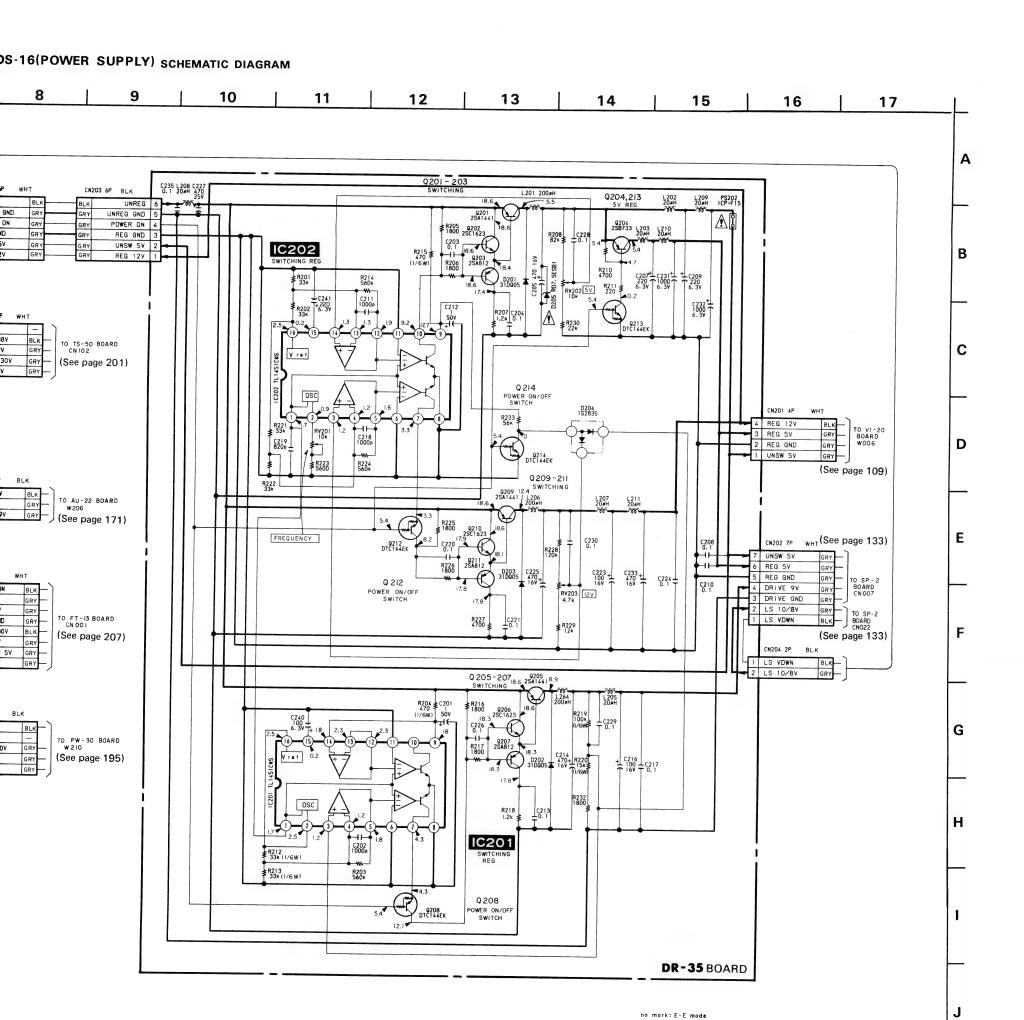




CHING REGULATOR), DT-63(POWER SUPPLY), DL-15(REGULATOR), DO-1(REGULATOR), DS-16(POWER SUPPLY) PRINTED WIRING BOARDS BOARD, DT-63 BOARD, DL-15 BOARD, DS-16 BOARD, DS-16 BOARD: 13,000 series—







Note:

- Caution when New parts mu Be careful in
- Resistors on wise noted.
 Resistors on otherwise not kΩ: 1000Ω,
- All capacitor
 50V or less a tantalums.
- All variable a unless otherw
- : adjusti
- === : B bu
- Voltages areReadings are
- Readings are
- Voltage variation
 tolerances.

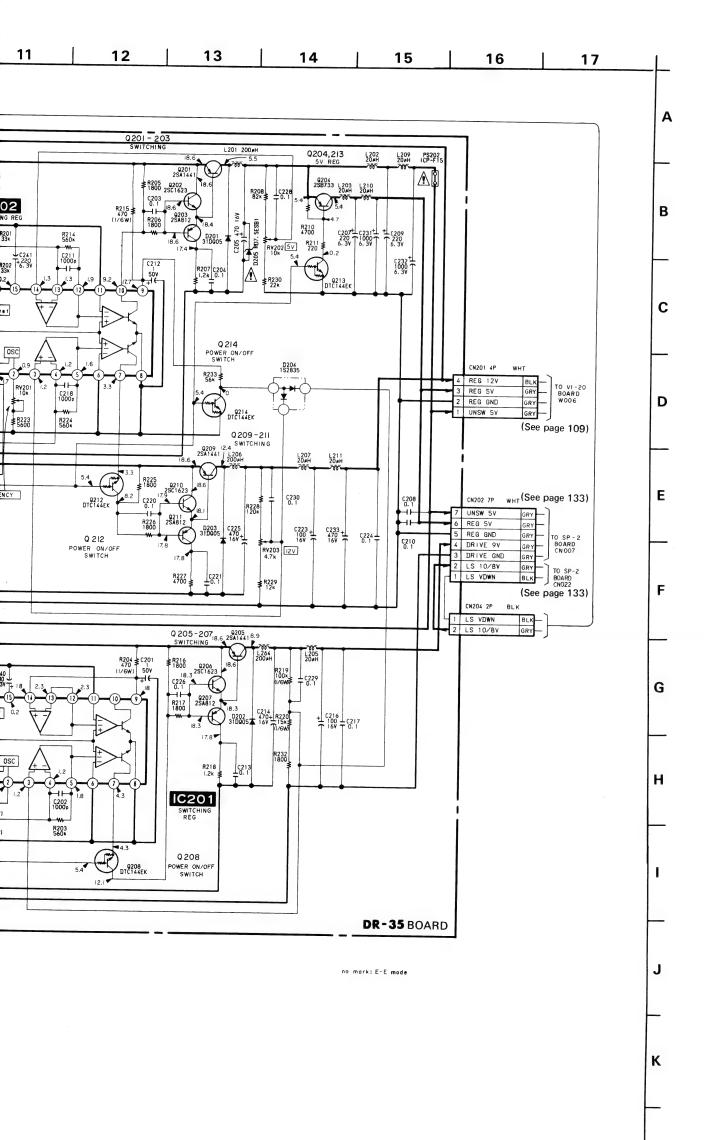
When indicatin

Note: The co

the board name.

<u></u> are part no

WER



Note:

- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Resistors on the DR-35 board are in ohms 1/10W unless otherwise noted.
 Resistors on the DT-63 and DL-15 boards are in ohms 1/6W otherwise noted.
- k Ω : 1000 Ω , M Ω : 1000k Ω . • All capacitors are in μF unless otherwise noted, pF : μμF.
- All capacitors are in μF unless otherwise noted, pF: μμF
 50V or less are not indicated except for electrolytice, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- _____: adjustment for repair.
- --- : B + bus.
- --- : B bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

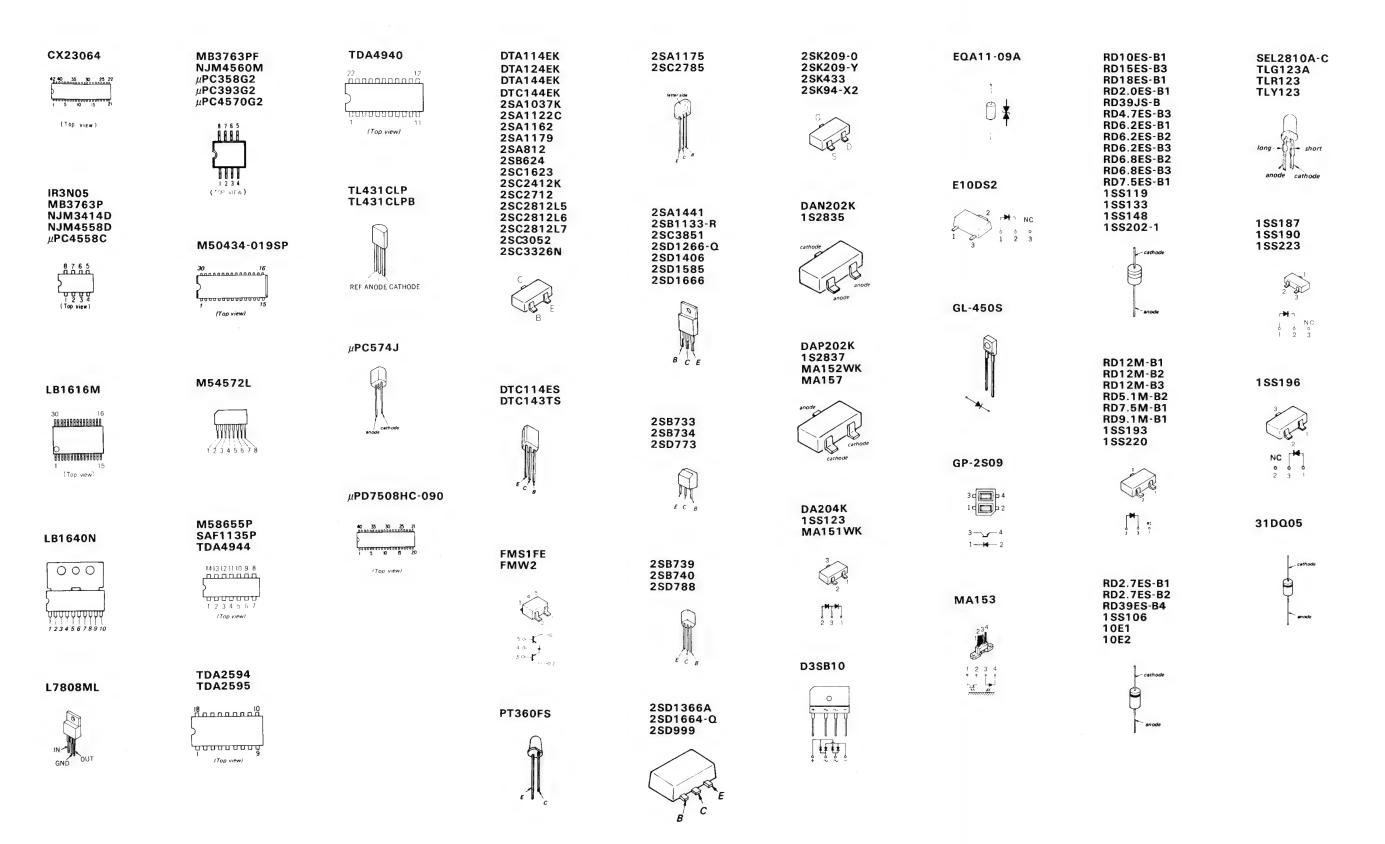
When indicating parts by reference number, please include the board name.

Note: The components identified by shading and mark

A are critical for safety. Replace only with part number specified.

4-3. SEMICONDUCTORS

2SK209-0 BU4051B BU4052B BU4053B CXP5016-191Q CXP5048H-069Q BA3707 CX23064 MB3763PF TDA4940 DTA114EK 2SA1175 CX20103 2SK209-Y HD14066BFP HD14070BFP NJM4560S NJM4560M DTA124EK 2SC2785 2SK433 μPC358G2 DTA144EK CXP5048H-070Q ก็กดกกกกกกกกก 2SK94-X2 μPC393G2 CXA1042M MB674101PF NJM3403AM DTC144EK μPC4570G2 μPD75104G-519-B1 TC40H000F 2SA1037K CX23078 μPD75106G-518-1B TC40H004F HD14051BP 2SA1122C HD14052BP μPD75208G-521-1B TC4011BF (Top view) 2SA1162 (Top view) HD14053BFP TC4030BF 2SA1179 HD14053BP TC4030BF-HB 2SA812 EGARARARARARARARA HD14538BP TC4066BF 2SB624 MB84051B μPC324G2 2SC1623 μPD4066BG 2SC2412K MB84052B TL431CLP BA6303F BU4053BF MB84053B IR3N05 2SC2712 TL431CLPB DAN202K MB3763P 2SC2812L5 MB88306P BIBLER 2SA1441 TOP VIEW NJM3414D 2SC2812L6 1S2835 MC14538BCP CX20115A 2SB1133-R NJM4558D 2SC2812L7 MSM6411B-19RS CX22021 2SC3851 2SC3052 HD14052BFP μPC4558C TC40103BP M50434-019SP 2SD1266-Q 8116111 2SC3326N LA5005M TC4051BP 2SD1406 MB84053BPF TC4051BP-HB 2SD1585 (TOP VIEW) 8765 CX20032 SAA5235 TC4052BF TC4052BP 2SD1666 TC4053BF TC4052BP-HP REF ANODE CATHODE TC4538BF TC4053BP 1234 μPD4364G-15L **TL1451CNS** TC4053BP-HP (Top view) CX20114 μPD4052BG TC4538BP μPD7566G-505 μPD4053BG μPD4051BC μPD4052BC DAP202K 1S2837 μPC574J μPD4053BC **HILLIAM** HIHHH MA152WK **MA157** 16 1514 312 11 10 9 M54572L DTC114ES LB1616M DTC143TS TITTE STREET (TOP VIEW) 2SB733 RESERVED FOR THE PROPERTY OF TH TYPERTY 2SB734 2SD773 CX20061 12345678 TOUBURE BURE BURE BURE (Top. view) BA6800AF CX20130 CXD1077M CXD1078M CX20131 BX1387 μPD7508HC-090 CX20137 DA204K CX20035 1SS123 M58655P CX20099 **MA151WK** (Top view) SAF1135P CX23012 LB1640N **TDA4944** MB8464-12LPF FMS1FE MB8464-15LPF 2SB739 FMW2 000 M51955BL (Top view) 2SB740 2SD788 CX20102 ÎRRERERER RALIÎ CX20147 AAAAAAAAAA 12345678910 TDA3592A μPD7566G-506 CXD1066Q (TOP VIEW) D3SB10 8888888888 CX20034 TDA2594 CX23011 (TOP VIEW) TDA2595 MB64H428PF L7808ML 2SD1366A PT360FS , naaaaaaa **BA7036LS** 2SD1664-Q 2SD999 (Top view)

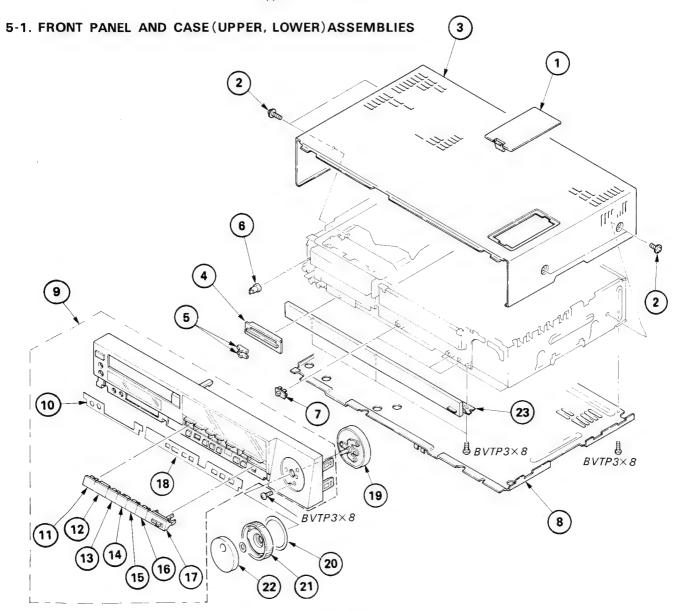


SECTION 5 EXPLODED VIEWS

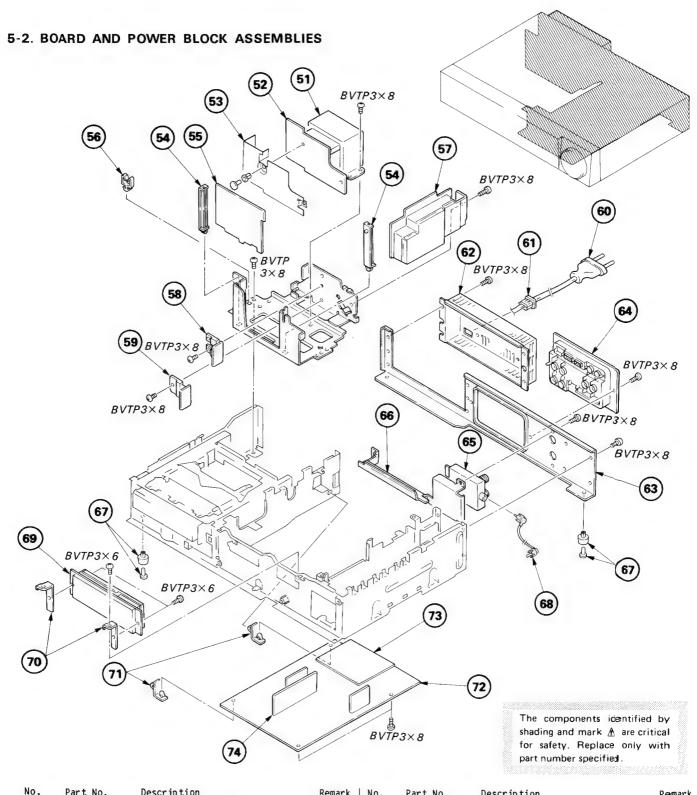
NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

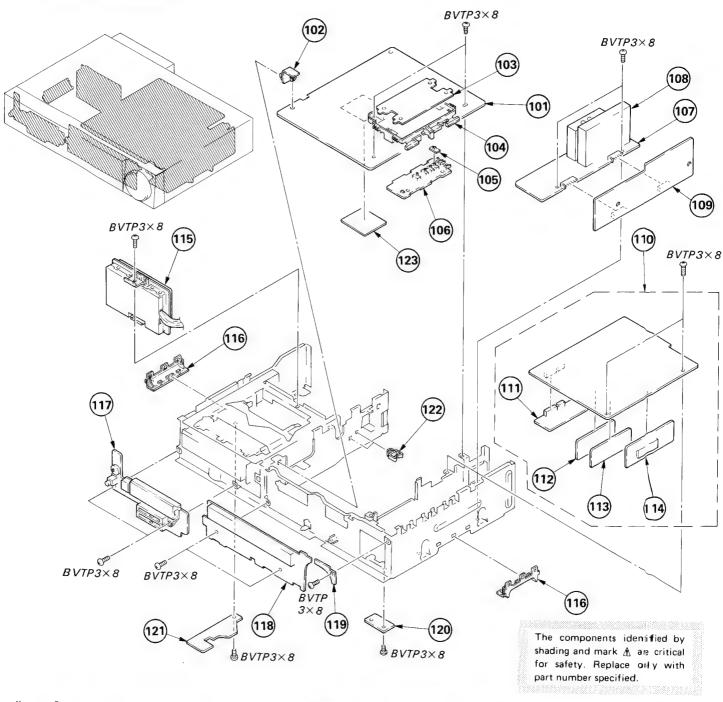


No.	Part No.	Description	Remark	No.	Part No.	<u>Description</u> Remark	
1 2 3 4 5 6 7 8 9	4-886-821-01 X-3711-979-1 X-3711-980-1 3-716-868-01 3-716-882-01 *3-716-913-01 X-3711-983-1 X-3711-984-1 *3-716-866-11 X-3711-953-1	KNOB, HP KNOB, SLIDE		13 14 15 16 17 18 19 20 21 22 23	X-3711-955-1 X-3711-981-1 *3-716-865-21 *3-716-865-31 1-464-784-11 3-716-831-01 3-711-962-01 X-3711-914-1 1-464-785-31	KEY, STOP KEY ASSY, PAUSE KEY ASSY, X2 KEY ASSY, REC PLATE (A), INDICATION, POCKET (WG MODEL) PLATE (A), INDICATION, POCKET (AE P MODEL ENCODER, ROTARY	



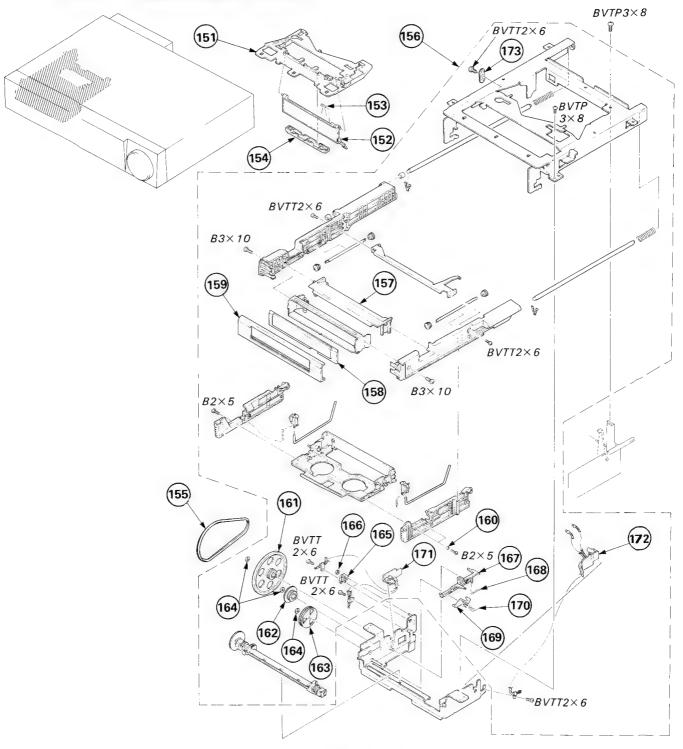
NO.	Part No.	Description .	Remark	NO.	Part No.	Description	Remark
51	1.1-448-836-11	TRANSFORMER, POWER		63	3-713-669-01	FRAME (A), REAR	
52	*1-622-006-11	DS-16 (C) BOARD		64		PLATE (A), ORNAMENTAL, JACK	
53	3-716-892-11	SHEET (LARGE), INSULATING		65		MODULATOR, RF (RFU-857)	
54	3-680-719-11	GUIDE, CHASSIS		66		BAND (A), RF MODULATOR	
55	*A-7070-325-A	DT-63 (C) BOARD, COMPLETE		67	3-697-937-01		
56	*4-309-753-00	HOLDER, WIRE		68	*1-555-110-00	CABLE, PIN	
57	*A-7060-585-A	DR-35 (B) BOARD, COMPLETE		69	*A-7060-475-A	VP-1 (A) BOARD, COMPLETE (WG MODE	EL)
58	*1-621-992-11	DO-1 BOARD		70		HOLDER, VPS (WG MODEL)	
59	*1-621-993-11	DL-15 BOARD		71	*3-701-832-00	HINGE, CIRCUIT BOARD	
60	1-534-817- XX 1-534-817-	CORD, POWER		72	*A-7060-469-A	VI-20 (A) BOARD, COMPLETE (WG MOD	DEL) 74
61		BUSHING (2104), CORD			*A-7060-792-A	VI-20 (B) BOARD, COMPLETE (AEP MC	DEL)74
62		COVER (A), POWER (WG MODEL)		73	*A-7068-031-A	TC-3 BOARD, COMPLETE (WG MODEL)	
	3-713-667-21	COVER (A), POWER (AEP MODEL)		74	*A-7068-030-A	CH-44 (B) BOARD, COMPLETE	

5-3. BOARD ASSEMBLY

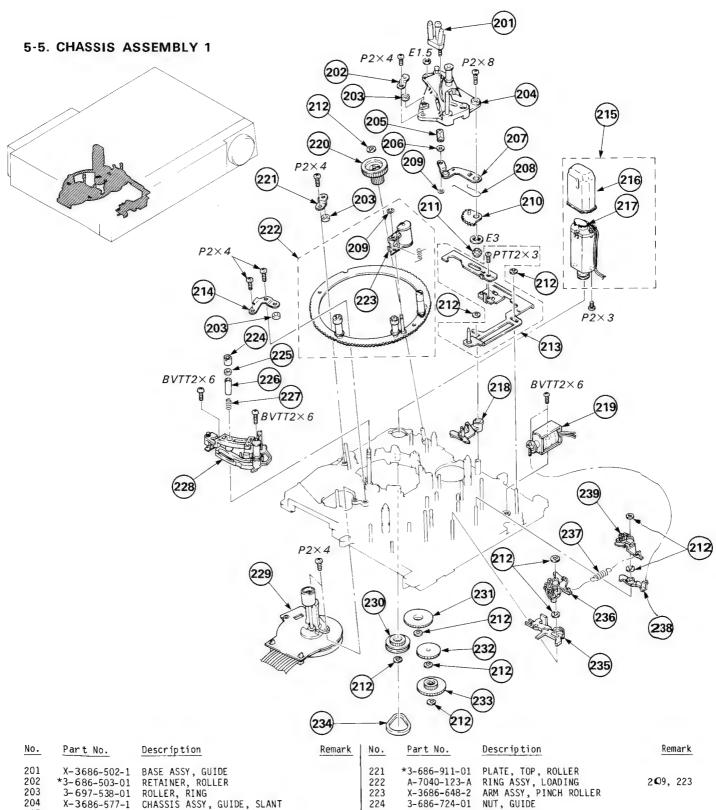


No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
101	*A-7060-467-A	SP-2 (B) BOARD, COMPLETE	123	111	*A-7068-022-A	AD-12 (A) BOARD, COMPLETE	
102		HINGE, CIRCUIT BOARD		112	*A-7068-025-A	NR-6 (A) BOARD, COMPLETE	
103		SHEET, PRESET (WG MODEL)	j	113	*A-7068-032-A	MK-2 (B) BOARD, COMPLETE	
	3-716-841-41	SHEET, PRESET (AEP MODEL)		114	*A-7068-021-A	AF-20 (A) BOARD, COMPLETE	
104	3-716-896-01	PRESET (MAIN) (WG MODEL)		115	*A-7060-466-A	RP-36 (B) BOARD, COMPLETE	
	3-716-896-31	PRESET (MAIN) (AEP MODEL)		116	3-716-907-01	PROTECTOR, FRAME	
105	3-713-694-01	KNOB (P), SLID		117		PW-30 (A) BOARD, COMPLETE	
106	000-414-A	PR-13 (A) BOARD, COMPLETE (WG	MODEL)	118	*A-7060-470-A	FT-13 (C) BOARD, COMPLETE (V	WG MODEL)
	*A-7060-609-A	PR-13 (B) BOARD, COMPLETE (AER	P MODEL)		*A-7060-793-A	FT-13 (D) BOARD, COMPLETE (A	AFP NO DEL)
107	*A-7060-471-A	TU-83 (A) BOARD, COMPLETE (WG	MODEL)	119	*1-621-985-11	FR-24 (A) BOARD	ALI IVOLLY
	*A-7060-607-A	TU-83 (B) BOARD, COMPLETE (AER	P MODEL)	120		CB-8 (A) BOARD	
108	1-463-761-11	TUNER, ET (DT-883B)		121			
109	△ *A-7060-482-A	TS-50 (A) BOARD, COMPLETE (WG	MODEL)	122	*4-309-753-00		
	41^A-/U60-608-A	TS-50 (B) BOARD, COMPLETE (AFF	P MODEL)	123	*1-622-469-11		
110	*A-7060-468-A	AU-22 (B) BOARD, COMPLETE	111-114		1 014 103 11	NO ED DOMNO	

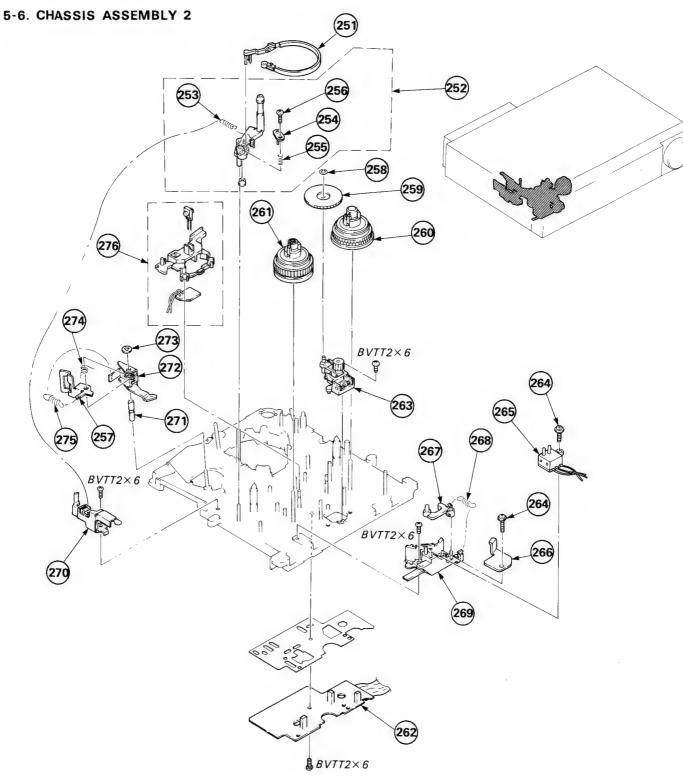
5-4. CASSETTE COMPARTMENT ASSEMBLY



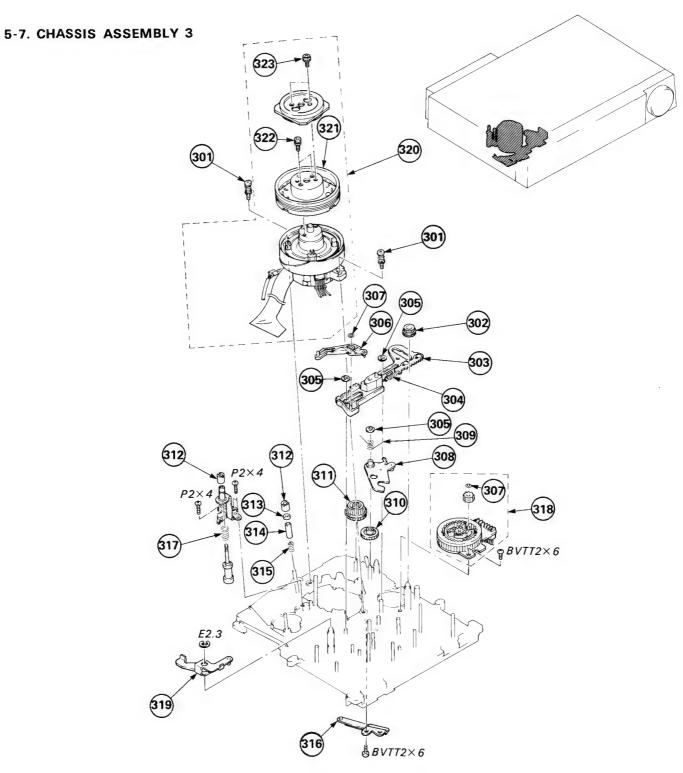
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151 152 153 154 155 156 157 158 159 160 161	3-713-670-01 *A-7090-443-A 3-716-885-01 3-713-684-01 3-713-682-01 *3-657-841-01 3-716-849-01	MIRROR ASSY SPRING HOLDER, LAMP BELT, LS COMPARTMENT ASSY, CASSETTE, LS THE GLASS, WINDOW HEAD, FRONT	157–173	163 164 165 166 167 168 169 170 171 172 173	3-669-596-00 3-716-821-01 3-669-465-00 3-716-937-01 3-716-850-01 3-713-687-01 *1-621-998-11 *1-621-997-11	WASHER (1.5), STOPPER SLIDER, LOCK SPRING, TENSION HOLDER, LOCK SPRING TE-6 BOARD	



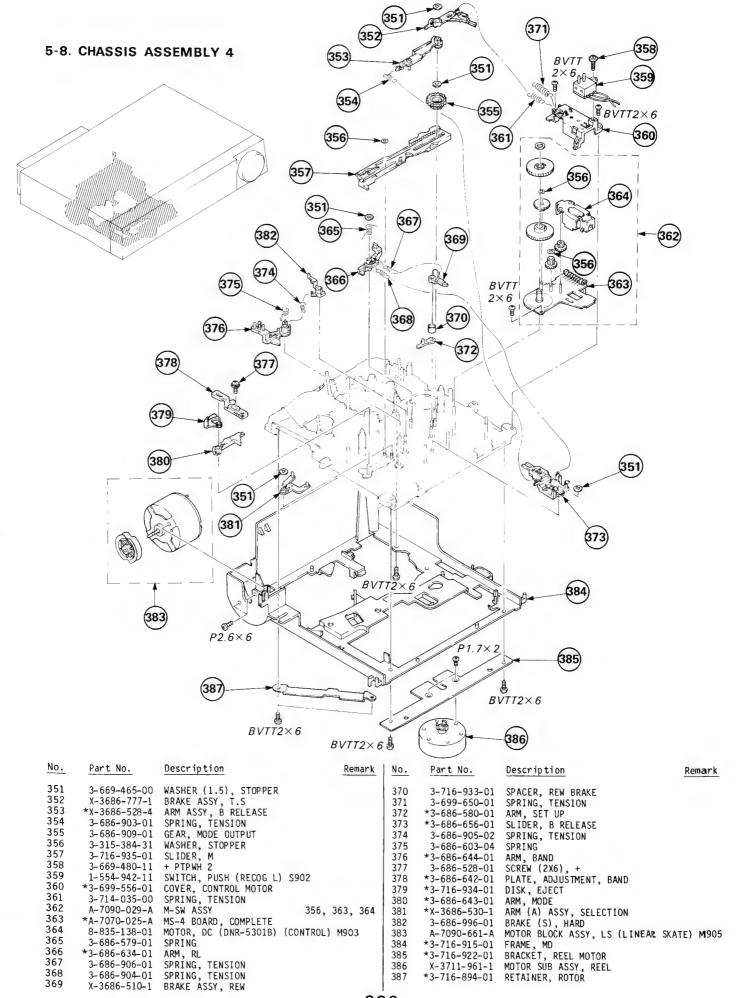
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219	X-3686-502-1 *3-686-503-01 3-697-538-01 X-3686-577-1 3-686-663-01 3-701-436-21 X-3686-537-1 3-686-701-01 3-315-384-31 3-699-509-01 3-686-537-01 3-669-465-00 A-7040-103-A *3-686-675-01 A-7040-065-A *3-686-675-01 1-161-057-00 *3-686-636-04	BASE ASSY, GUIDE RETAINER, ROLLER ROLLER, RING CHASSIS ASSY, GUIDE, SLANT WASHER, STOPPER, 2 GANG WASHER, POLYEHTHYLENE ARM ASSY SPRING WASHER, STOPPER GEAR, SECTOR RETAINER, LOCK SLODER WASHER (1.5), STOPPER SLIDER ASSY, LOCK STOPPER, RING MOTOR ASSY, L (LOADING) M904 CAP, SHIELD, L MOTOR CAP, CERAMIC 0.033MF X C901	6, 217	No. 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239	*3-686-911-01 A-7040-123-A X-3686-648-2 3-686-724-01 *3-686-894-01 3-686-912-01 3-699-609-01 A-7040-054-A 8-835-247-01 X-3686-514-1 3-686-508-01 3-686-545-01 3-686-549-01 X-3686-895-1 3-713-560-01 *3-686-635-01	PLATE, TOP, ROLLER RING ASSY, LOADING ARM ASSY, PINCH ROLLER NUT, GUIDE FLANGE, #3 #4 GUIDE GUIDE, #3 #4 SPRING, COMPRESSION GUIDE (P) ASSY, ENTRANCE MOTOR, DC BHF-2804D (CAPSTAN) GEAR ASSY, NO.1 GEAR, NO.2	2 0 9, 223
220	3-697-518-01	GEAR, NO.10		<u>'</u> _			



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
251 252 253 254 255 256 257 258 259 260 261 262 263	A-7040-071-A 3-699-519-01 *X-3686-523-1 3-669-666-00 3-697-546-01 *3-686-641-01 3-315-384-31 X-3686-5763-1 X-3686-572-2 X-3711-962-1 *A-7060-411-A	BAND ASSY, TENSION REGULATOR ARM ASSY, TENSION REGULATOR SPRING, TENSION PLATE ASSY, TENSION REGULATOR SPRING, COMPRESSION SCREW (+-M2X6), SPECIAL ARM, PINCH PRESS WASHER, STOPPER GEAR (B) ASSY, DRIVING TABLE ASSY, REEL, TAKE-UP TABLE ASSY, SUPPLY REEL RS-17 BOARD, COMPLETE DRIVING COMPLETE ASSY	253-256	264 265 266 267 268 269 270 271 272 273 274 275 276	*3-686-991-01 *3-686-637-01 3-696-082-01 *3-686-760-01 *X-3686-525-1 *3-686-567-01 *3-686-660-01 3-669-465-00 3-686-568-01 3-686-885-01	BRAKE (\$), SOFT SPRING, TENSION GUIDE, BAND HOOK ASSY, SPRING SLEEVE, PINCH PRESS ARM, PINCH LIMITER WASHER (1.5), STOPPER	



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
301		SCREW ASSY, FITTING		313			
302	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT		314	3-686-912-01	GUIDE, #3 #4	
303	*X-3686-548-2	SLIDER SUB ASSY, L		315	3-699-609-01	SPRING, COMPRESSION	
304	3-686-886-01	SPRING, TENSION		316	1-535-535-11	TERMINAL, SHAFT GROUND	
305	3-669-465-00	WASHER (1.5), STOPPER		317	3-699-514-01	SPRING, COMPRESSION	
306	*X-3686-518-3	ARM ASSY		318	X-3712-403-1	L-SW ASSY	307
307	3-701-437-11	WASHER		319	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
308	X-3686-579-1	CHANGE ASSY, DRIVE		320	A-7048-102-A	DRUM ASSY (DGH-12D-R)	3 21-323
309	3-686-540-01	SPRING, TORSION		321	A-7049-121-A	DRUM ASSY, UPPER, ROTARY	(DGR-12-R)
310	3-686-535-01	GEAR, NO.8		322	3-686-403-01	SCREW (2X5), BOLT WASHER	
311	3-686-539-01	GEAR, NO.9		323	3-686-422-01	WASHER (2X2.7), BOLT, HOL	E
312	3-686-724-01	NUT, GUIDE					



5-9. HARDWARE LIST

SCREW

7-621-255-20 SCREW +P 2X4 7-621-255-50 SCREW +P 2X8 7-621-772-20 SCREW +B 2X5 7-627-552-28 SCREW, PRECISION +P 1.7X2 7-627-553-48 SCREW, PRECISION +P 2X4 7-628-254-00 SCREW +PS 2.6X5 7-682-549-09 SCREW +B 3X10 7-685-133-19 SCREW +P 2.6X6 TYPE1 7-685-233-19 SCREW +KTP 2.6X6 TYPE2NON-SLIT 7-685-645-79 SCREW +BVTP 3X6 TYPE2 IT-3 7-685-645-79 SCREW +BVTP 3X6 TYPE2 3X8 TYPE2 IT-3 3X8 TYPE2 7-685-646-79 SCREW +BVTP 3X8 TY
7-685-646-79 SCREW +BVTP 3X8 TY
7-685-780-04 SCREW +PTT 2X3 (S)
7-685-853-01 SCREW +BVTT 2X6 (S) STOP RING

7-624-101-01 STOP RING 1.2 (E TYPE)
7-624-102-04 STOP RING 1.5, TYPE -E
7-624-105-04 STOP RING 2.3, TYPE -E
7-624-106-04 STOP RING 3.0, TYPE -E
7-624-190-71 STOP RING 5, TYPE-CS

DRUM****

SCREW

WASHER

7-623-420-07 LW 2, TYPE B

PW-30

RS-17

NOTE:

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 6 ELECTRICAL PARTS LIST

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F: nonflammable

 Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

MF : μF, PF : μμF

COILS

• MMH : mH, UH : μH

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description				Remark
		PW-30 BOARD, COMPLETE			R241 R301 R302	1-216-073-00 1-216-017-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP	10K 47 4.7K	5% 5% 5%	1/10W 1/10W 1/10W	
	*3-662-205-00 *3-716-919-01	HOLDER (E), LED HOLDER, LEVEL INDICATION	N TUBE		R303 R304	1-216-075-00 1-216-021-00	METAL CHIP METAL CHIP	12K 68	5% 5%	1/10W 1/10W	
	CAF	PACITOR			R311	1-216-109-00	METAL CHIP	330K	5%	1/10W	
C201 C301 C302 C303	1-124-234-00 1-124-257-00 1-163-021-00		10% 20% 20%	50V 10V 35V 50V	R313 R314 R315 R401	1-216-053-00 1-216-295-00 1-216-295-00 1-216-017-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.5K 0 0 47	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W	
C401	1-124-234-00	ELECT 22MF	20%	10V	R402 R403	1-216-065-00 1-216-075-00	METAL CHIP	4.7K	5%	1/10W	
C402 C403		ELECT 2.2MF CERAMIC CHIP 0.01MF	20%	35V 50V	R404 R411 R413	1-216-021-00 1-216-109-00 1-216-053-00	METAL CHIP	12K 68 330K 1.5K	5% 5% 5% 5%	1/10W 1/10W 1/10W	
	COMPOSIT	TION CIRCUIT BLOCK					PILIAL CHIP	1.3/	36	1/10W	
CP201 CP202	1-232-957-11 1-232-967-11	COMPOSITION CIRCUIT BLOC COMPOSITION CIRCUIT BLOC	CK CK		R414 R415	1-216-295-00 1-216-295-00	METAL CHIP	0	5% 5%	1/10W 1/10W	
	DIC	DDF				VAR	IABLE RESISTO	<u> </u>			
D101 D102	8-719-812-33 8-719-118-29				RV201 RV301	1-228-988-00 1-237-589-11	RES, VAR, CAR RES, VAR, SL	RBON 10 IDE 10K	K/10K /10K		
D103	8-719-105-32	DIODE RD2.7M-B2				SWI	тсн				
D104 D105	8-719-907-29 8-719-907-29	DIODE EQA11-09A DIODE EQA11-09A			\$101	1-554-174-00	SWITCH, KEY E	BOARD			
	IC				*****	*****	*****	*****	*****	*****	*****
IC101 IC201 IC202	8-741-138-70 8-759-745-64 8-759-933-54	IC BX-1387 IC NJM4560M IC BA6800AF				*A-7060-411-A	RS-17 BOARD	. COMPL	ETE ***		
	JAC	K				3-712-410-01	HOLDER, RS				
J201	1-507-792-21	_				CAP	ACITOR				
0201		ICATOR TUBE			C001 C002	1-163-038-00 1-124-465-00	CERAMIC CHIP	0.1MF 0.47MF			25V 50V
ND201	1-519-406-11	INDICATOR TUBE, FLUORESC	ENT		C003	1-123-608-00 1-163-038-00		0.22MF			50V 25V
		NSISTOR			C005	1-163-021-00	CERAMIC CHIP	0.01MF			50V
Q211	8-729-100-76	TRANSISTOR 2SA812			C006	1-163-021-00	CERAMIC CHIP	0.01MF		10%	50 V
Q212 Q213	8-729-100-76	TRANSISTOR 2SA812 TRANSISTOR 2SA812					NECTOR				
	RES	ISTOR			CN002 3	*1-564-003-00 *1-564-003-00	PIN, CONNECTO	R 4P R 4P			
R101 R103 R211	1-216-041-00 1-216-073-00 1-216-083-00	METAL CHIP 470 5% METAL CHIP 10K 5% METAL CHIP 27K 5%	1/10W 1/10W 1/10W		CN004 7	*1-564-001-11 *1-564-001-11 *1-564-001-11	PIN, CONNECTO PIN, CONNECTO	R 2P R 2P			
R213 R214	1-216-057-00 1-216-073-00	METAL CHIP 2.2K 5% METAL CHIP 10K 5%	1/10W 1/10W			IC					
R215 R216	1-216-057-00 1-216-073-00	METAL CHIP 2.2K 5% METAL CHIP 10K 5%	1/10W 1/10W		IC001 IC002	8-759-107-68 8-759-100-93	IC CX20115A IC UPC393G2				
R217 R218	1-216-085-00 1-216-073-00	METAL CHIP 33K 5% METAL CHIP 10K 5%	1/10W 1/10W			DIO	DE				
R240	1-216-001-00		1/10W		PH001	8-719-939-11	GP2SO9-B				

							1					
Ref.No	Part No.	Description	_			Remark	Ref.No	Part No.	Description			Remark
PH002 PH003	8-719-939-11 8-719-939-11	GP2S09-B GP2S09-B					C114 C115 C116	1-163-818-00 1-163-021-00 1-163-035-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.01MF	10% 10%	50V 50V 25V
	TRA	NSISTOR					C117 C118	1-163-033-00 1-163-021-00	CERAMIC CHIP	0.022MF	100	50V 50V
Q001 Q002 Q003 Q004 Q005	8-729-901-01 8-729-901-01 8-729-901-01 8-729-903-97 8-729-903-82	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	DTC144EK DTC144EK FMS1FE				C119 C120 C121 C122	1-163-818-00 1-163-818-00 1-163-021-00 1-163-107-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.1MF 0.01MF 39PF	10% 10% 10% 5%	50V 50V 50V 50V 50V
	RES	ISTOR					C123	1-163-021-00	CERAMIC CHIP			
R001 R002 R003 R004	1-216-081-00 1-216-055-00 1-216-031-00 1-216-174-00	METAL CHIP METAL CHIP METAL CHIP	22K 1.8K 180 100	5% 1 5% 1 5% 1	/10W /10W /10W /8W		C124 C125 C126 C127 C128	1-163-038-00 1-124-638-11 1-163-021-00 1-163-021-00 1-123-611-00	CERAMIC CHIP ELECT CERAMIC CHIP CERAMIC CHIP ELECT	22MF 0.01MF	20%	25V 6.3V 50V 50V 50V
R005	1-216-089-00	METAL CHIP	47K		/10W		C129	1-124-638-11	ELECT	22MF	20%	6.3
R006 R007 R008 R009 R010	1-216-089-00 1-216-089-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 47K 10K 10K 10K	5% 1 5% 1 5% 1	/10W /10W /10W /10W /10W		C130 C131 C132 C133	1-163-021-00 1-163-021-00 1-123-611-00 1-163-107-00	CERAMIC CHIP CERAMIC CHIP ELECT CERAMIC CHIP	0.01MF 1MF	10% 20% 5%	50V 50V 50V 50V
R011	1-216-073-00	METAL CHIP	10K		/10W		C134 C136	1-163-035-00 1-163-017-00	CERAMIC CHIP		10%	50V 50V
R012 R013 R014	1-216-073-00 1-216-107-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	10K 270K 10K	5% 1 5% 1 5% 1	/10W /10W /10W		C137 C138 C139	1-163-033-00 1-163-033-00 1-163-021-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.022MF 0.022MF	10% 10%	25V 25V 50V
R015	1-216-107-00	METAL CHIP	270K		/10W		C140	1-123-617-00	ELECT	10MF	20%	16V
R016 R017 R018 R019	1-216-073-00 1-216-073-00 1-216-107-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 270K 10K	5% 1 5% 1 5% 1	/10W /10W /10W /10W		C201 C202 C203 C204	1-135-095-00 1-135-095-00 1-163-021-00 1-163-021-00	TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP	1.5MF 0.01MF	20% 20%	10V 10V 50V 50V
R020	1-216-107-00	METAL CHIP	270K	5% 1	/10W		C205	1-124-638-11	ELECT	22MF	20%	6.38
		RMISTOR					C206 C207	1-163-038-00 1-163-038-00	CERAMIC CHIP	0.1MF		25V 25V
	1-806-886-11						C208 C209	1-124-638-11 1-163-021-00	ELECT CERAMIC CHIP	22MF 0.01MF	20%	6.3V 50V
******	********	*****	******	******	****	*****	C210	1-163-035-00	CERAMIC CHIP	0.047MF	10%	257
*	*A-7060-466-A	RP-36 BOA					C211 C212	1-163-021-00 1-163-021-00	CERAMIC CHIP	0.01MF	4.00	50V 50V
	CAF	PACITOR					C213 C214	1-163-818-00 1-163-818-00	CERAMIC CHIP CERAMIC CHIP		10% 10%	50V 50V
C101 C102 C103 C104	1-135-095-00 1-135-095-00 1-163-021-00 1-163-021-00		IP 1.5MF IP 0.01MF IP 0.01MF		0%	10V 10V 50V 50V	C215 C216 C217 C218	1-163-021-00 1-163-035-00 1-163-021-00 1-163-021-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.047MF 0.01MF 0.01MF	10%	50V 25V 50V 50V
C105	1-124-638-11	ELECT	22MF	20)%	6.3	C219	1-163-818-00	CERAMIC CHIP		10%	50V
C106 C107 C108 C109 C110	1-163-038-00 1-163-038-00 1-124-638-11 1-163-021-00 1-163-035-00	CERAMIC CH ELECT CERAMIC CH	IP 0.1MF 22MF IP 0.01MF			25V 25V 6.3V 50V 25V	C220 C221 C222 C223 C224	1-163-818-00 1-163-021-00 1-163-109-00 1-163-021-00 1-163-038-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.01MF 47PF 0.01MF	10% 10% 5%	50V 50V 50V 50V 25V
C111 C112 C113	1-163-033-00 1-163-021-00 1-163-818-00	CERAMIC CH	IP 0.01MF)%	50V 50V 50V	C225 C226 C227	1-124-638-11 1-163-021-00 1-163-021-00	ELECT CERAMIC CHIP CERAMIC CHIP		20%	6.3V 50V 50V

RP-36

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C228	L1 ELECT 22MF DO CERAMIC CHIP 0.01MF DO CERAMIC CHIP 0.01MF	20% 20% 10% 20%	50V 6.3V 50V 50V 50V	L108 L201 L203 L204 L205	1-408-794-00 1-408-791-00 1-407-158-XX 1-407-158-XX 1-408-970-21	MICRO INDUCTO	P 150UH OR 12UH OR 12UH	Name (
C233 1-163-109-1 C237 1-163-033-1 C238 1-163-033-1 C239 1-163-021-1 C240 1-163-038-1	OO CERAMIC CHIP 0.022MF OO CERAMIC CHIP 0.022MF OO CERAMIC CHIP 0.01MF	5% 10% 10%	50V 25V 25V 50V 25V	L206 L207 L208 L301 L302	1-407-161-XX 1-408-794-00 1-408-794-00 1-408-970-21 1-407-163-XX	MICRO INDUCTO INDUCTOR CHIP INDUCTOR CHIP	OR 22UH 2 270UH 2 270UH OR 10UH	
C241	OC CERAMIC CHIP 0.01MF OC CERAMIC CHIP 0.01MF OC ELECT 10MF	20%	25V 50V 50V 16V 50V	L401 L402	1-408-970-21	MICRO INDUCTO MICRO INDUCTO NSISTOR	OR 220UH OR 10UH	
C305 1-163-021-(C306 1-163-038-(C307 1-163-021-(C308 1-163-021-(C309 1-123-617-(OC CERAMIC CHIP 0.01MF OC CERAMIC CHIP 0.1MF OC CERAMIC CHIP 0.01MF OC CERAMIC CHIP 0.01MF	20%	50V 25V 50V 50V 16V	Q101 Q102 Q103 Q104 Q105	8-729-202-38 8-729-901-05	TRANSISTOR 2S TRANSISTOR 2S TRANSISTOR DT TRANSISTOR 2S TRANSISTOR DT	C3326N A124EK A1122	
C401 1-163-141-(C402 1-163-021-(C403 1-163-141-(C404 1-163-117-(C405 1-163-117-(O CERAMIC CHIP 0.01MF O CERAMIC CHIP 0.001MF O CERAMIC CHIP 100PF	10% 10% 5% 5%	50V 50V 50V 50V 50V	0201 0202 0203 0301 0302	8-729-202-38 8-729-901-05	TRANSISTOR 2S TRANSISTOR DT. TRANSISTOR DT. TRANSISTOR DT.	C3326N A124EK C1623-L7	
		5% 5%	50V 50V	Q303 Q304 Q307 Q308 Q402	8-729-100-67 8-729-100-67 8-729-100-67	TRANSISTOR DTO TRANSISTOR 250 TRANSISTOR 250 TRANSISTOR 250	C1623-L7 C1623-L7 C1623-L7	
CN001 1-562-629-1 CN002 *1-564-001-1 CN003 *1-564-005-0	1 SOCKET, CONNECTOR (19P) 1 PIN, CONNECTOR 2P 0 PIN, CONNECTOR 6P 0 PIN, CONNECTOR 5P			Q403 Q404	8-729-117-54 8-729-312-22	TRANSISTOR 25/ TRANSISTOR 25/ TRANSISTOR 25/ ISTOR	A1175	
CN006 *1-564-002-0 CN007 *1-564-002-0 CN008 *1-564-017-0	O PIN, CONNECTOR 3P O PIN, CONNECTOR 3P O PIN, CONNECTOR 7P			R101 R102 R103 R104 R105	1-216-065-00 1-216-065-00 1-216-065-00 1-216-065-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP	4.7K 5% 4.7K 5% 4.7K 5% 4.7K 5% 22K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
_	10DE 3 DIODE 1S2835			R106	1-216-083-00		27K 5%	1/10W
<u>I</u>					1-216-082-00 1-216-055-00	METAL CHIP	24K 5% 24K 5% 1.8K 5%	1/10W 1/10W 1/10W
IC001 8-752-003-4 IC002 8-752-003-4	O IC CX20034 O IC CX20034				1-216-089-00	METAL CHIP	47K 5% 22K 5%	1/10W
	OIL			R112 R113	1-216-083-00 1-216-082-00	METAL CHIP METAL CHIP	27K 5% 24K 5%	1/10W 1/ 1 0W 1/ 1 0W
L103 1-407-189-X	O INDUCTOR CHIP 150UH X MICRO INDUCTOR 15UH						24K 5% 1.8K 5%	1/ 1 0W 1/ 1 0W
L105 1-408-970-2 L106 1-407-161-X	X MICRO INDUCTOR 150H L MICRO INDUCTOR 100H X MICRO INDUCTOR 220H			R117 R118	1-216-053-00 1-216-035-00	METAL CHIP METAL CHIP	47K 5% 1.5K 5% 270 5%	1/10W 1/10W 1/10W
L107 1-408-794-0	O INDUCTOR CHIP 270UH		j				100 5% 100 5%	1/ 1 0W 1/ 1 0W

									1						
Ref.	No	Part No.	Descript	tion				Remark	Ref.No	Part No.	<u>Description</u>				Remark
R12		1-216-053-00	METAL CH		1.5K	5%	1/10W		R402	1-216-081-00	METAL CHIP	22K 150	5% 5%	1/10W 1/10W	
R12		1-216-683-11	METAL CH		22K 24K	0.50%			R403	1-216-029-00 1-216-033-00	METAL CHIP	220	5%	1/10W	
R12		1-216-061-00	METAL CH		3.3K		1/10W		R405	1-216-017-00	METAL CHIP	47	5%	1/10W	
R12		1-216-089-00	METAL CH		47K	5%	1/10W		R406	1-216-005-00	METAL CHIP	15	5%	1/10W	
R128	8	1-216-049-00	METAL CH	HIP	1K	5%	1/10W		R407	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R12		1-216-023-00	METAL CH		82	5%	1/10W		R408	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R130		1-216-023-00	METAL CH		82		1/10W		R421 R423	1-216-295-00 1-216-295-00	METAL CHIP	0 0	5% 5%	1/10W 1/10W	
R13 R13		1-216-061-00 1-216-097 - 00	METAL CH METAL CH		3.3K 100K	5% 5%	1/10W 1/10W		K423	1-216-295-00	METAL CHIP	U	310	1/10W	
										VAR	IABLE RESISTOR	2			
R13! R20		1-216-097-00 1-216-065-00	METAL CH		100K 4.7K	5% 5%	1/10W 1/10W		RV101	1-228-920-00	RES, ADJ, CAI	RON 2.	2K		
R20		1-216-065-00	METAL CH			5%	1/10W		RV102	1-228-920-00	RES, ADJ, CAL				
R20		1-216-065-00	METAL CH		4.7K	5%	1/10W		RV201	1-228-920-00	RES, ADJ, CAI	RBON 2.	2K		
R20	4	1-216-065-00	METAL CH	HIP	4.7K	5%	1/10W		RV202	1-228-920-00	RES, ADJ, CAR	RBON 2.	2K		
R20		1-216-081-00	METAL CH		22K	5%	1/10W		*****	*****	*****	*****	****	******	*****
R20		1-216-083-00	METAL CH		27K	5% 5%	1/10W 1/10W			*A-7060-467-A	SP-2 BOARD,	COMDIE	TC		
R20 R20		1-216-082-00 1-216-082-00	METAL CH		24K 24K	5%	1/10W			A-7000-407-A	*******				
R20		1-216-055-00	METAL CH		1.8K	5%	1/10W				(Including t	he RB-2	board	d)	
R210	0	1-216-089-00	METAL CH	HIP	47K	5%	1/10W			CAP	ACITOR				
R21		1-216-081-00	METAL CH		22K	5%	1/10W								
R21		1-216-083-00	METAL CH		27K	5%	1/10W		C001	1-124-907-00	ELECT	10MF		20%	50V 25V
R21:		1-216-082-00 1-216-082-00	METAL CH METAL CH		24K 24K	5% 5%	1/10W 1/10W		C002	1-163-038-00 1-163-117-00	CERAMIC CHIP			5%	50V
NZ I	7	1-210-002-00	ML IAL CI	1117	271	J /0	1/104		C004	1-163-117-00	CERAMIC CHIP			5%	50V
R21!		1-216-055-00	METAL CH	HIP	1.8K	5%	1/10W		C020	1-124-907-00	ELECT	10MF		20%	50 V
R21		1-216-089-00	METAL CI		47K	5%	1/10W			1 160 000 00	0554440 0015	0 145			057
R21 R218		1-216-053-00 1-216-049-00	METAL CI		1.5K 1K	5% 5%	1/10W 1/10W		C021 C022	1-163-038-00 1-163-038-00	CERAMIC CHIP				25V 25V
R219		1-216-025-00	METAL CH METAL CH		100	5%	1/10W		C023	1-163-038-00	CERAMIC CHIP				25V
		2 210 020 00	1121112 01		100	3,0	2, 20		C024	1-163-038-00	CERAMIC CHIP				25V
R220		1-216-025-00	METAL CH		100	5%	1/10W		C025	1-124-907-00	ELECT	10MF		20%	50V
R22		1-216-053-00	METAL CI		1.5K	5% 5%	1/10W 1/10W		C030	1-124-907-00	ELECT	10MF		20%	50 V
R22!		1-216-067-00 1-216-067-00	METAL CI		5.6K 5.6K	5%	1/10W		C031	1-163-038-00	CERAMIC CHIP			20%	25V
R229		1-216-023-00	METAL CI		82	5%	1/10W		C032	1-163-093-00	CERAMIC CHIP			5%	50 V
									C033	1-163-093-00	CERAMIC CHIP			5%	50V
R230		1-216-023-00	METAL CI		82	5%	1/10W		C050	1-163-038-00	CERAMIC CHIP	0.1MF			25V
R23 R23		1-216-061-00 1-216-061-00	METAL CI		3.3K 3.3K	5% 5%	1/10W 1/10W		C051	1-163-038-00	CERAMIC CHIP	0.1MF			25 V
R23		1-216-061-00	METAL C		3.3K	5%	1/10W		C080	1-163-101-00	CERAMIC CHIP			5%	50V
R23	4	1-216-097-00	METAL C		100K	5%	1/10W		C081	1-163-101-00	CERAMIC CHIP			5%	50V
0001	-	1 016 007 00	METAL 0		1004	Fα	1 /1 011		C082	1-131-345-00	TANTALUM	0.47MF		10%	35 V 50 V
R23! R30		1-216-097-00 1-216-089-00	METAL C		100K 47K	5% 5%	1/10W 1/10W		C083	1-123-816-00	ELECT	10MF		20%	30 V
R30		1-216-073-00			10K	5%	1/10W		C084	1-163-038-00	CERAMIC CHIP	0.1MF			25V
R303	3	1-216-045-00			680	5%	1/10W		C085	1-163-038-00					25 V
R30	4	1-216-091-00	METAL C	HIP	56K	5%	1/10W		C086	1-163-038-00	CERAMIC CHIP				25V 25V
R30	5	1-216-061-00	METAL C	UID	3.3K	5%	1/10W		C120 C121	1-163-038-00 1-163-038-00	CERAMIC CHIP				25V
R30		1-216-085-00			33K	5%	1/10W		0121	1-103-030-00	SERVINIO CHIEF	JIAFII			
R30	7	1-216-077-00	METAL C	HIP	15K	5%	1/10W		C122	1-163-117-00	CERAMIC CHIP			5%	50 V
R308		1-216-039-00			390	5%	1/10W		C123	1-163-117-00	CERAMIC CHIP		45	5%	50V
R309	9	1-216-047-00	METAL C	HIP	820	5%	1/10W		C201 C202	1-163-017-00 1-124-908-11	CERAMIC CHIP	0.004/N 22MF	117	10% 20%	50 V 25 V
R310)	1-216-035-00	METAL C	HIP	270	5%	1/10W		C202	1-163-035-00	CERAMIC CHIP		=	10%	25 V
R31:	1	1-216-041-00	METAL C	HIP	470	5%	1/10W								
R40:	1	1-216-085-00	METAL C	HIP	33K	5%	1/10W		C204	1-124-249-00	ELECT	0.1MF		20%	50 V

SP-2

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Daggarintian			
						KET .NO	Part No.	Description			Remark
C205 C206	1-163-038-00 1-124-283-00	CERAMIC CHIP		0.0%	25V	C262	1-163-035-00	CERAMIC CHIP		10%	25V
C207	1-163-038-00	ELECT CERAMIC CHIP	4.7MF	20%	16V	C264	1-163-109-00			5%	50V
C208	1-123-613-00	ELECT	3.3MF	20%	25V 50V	C490	1-101-006-00	CERAMIC CHIP			50V
C209	1-124-240-00	ELECT	10MF	20%	25V	C491 C492	1-101-006-00			7.00/	50V
			10/11	202	234	C500	1-163-059-00 1-163-035-00	CERAMIC CHIP		10%	50V
C210	1-124-240-00	ELECT	10MF	20%	25 V	C501	1-163-035-00	CERAMIC CHIP			50V 50V
C211	1-124-240-00	ELECT	10MF	20%	25V	0001	1 103 033 00	CLAMITO CITY	0.04714		301
C212	1-124-240-00	ELECT	10MF	20%	25V	C502	1-163-131-00	CERAMIC CHIP	390PF	10%	50V
C213	1-124-255-00	ELECT	1MF	20%	50V	C600	1-163-035-00	CERAMIC CHIP		20.0	50V
C214	1-124-903-00	ELECT	1MF	20%	50V	C601	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V
C215	1-124-903-00	ELECT	1MF	209	FOV	C602	1-123-617-00	ELECT	10MF	20%	167
C216	1-124-229-00	ELECT	33MF	20% 20%	50V 10V	C603	1-163-035-00	CERAMIC CHIP			50 V
C217	1-124-229-00	ELECT	33MF	20%	107	C604	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C218	1-124-229-00	ELECT	33MF	20%	100	C605	1-163-109-00	CERAMIC CHIP	4700	ro.	FOW
C219	1-163-117-00	CERAMIC CHIP		5%	50V	C606	1-163-101-00	CERAMIC CHIP		5% 5%	50V 50V
						C607	1-163-109-00	CERAMIC CHIP		5%	50V 50V
C220	1-163-117-00	CERAMIC CHIP		5%	50V	C608	1-163-035-00	CERAMIC CHIP		JR	50V
C221	1-124-907-00	ELECT	10MF	20%	50V	C609	1-163-035-00	CERAMIC CHIP			50 V
C222 C223	1-163-021-00	CERAMIC CHIP			507	C610	1-163-035-00	CERAMIC CHIP	0.047MF		507
C223	1-163-021-00 1-163-021-00	CERAMIC CHIP			507						
0224	1-103-021-00	CERAMIC CHIP	O.UIMF		50 V	C611	1-123-617-00	ELECT	10MF	20%	167
C225	1-163-021-00	CERAMIC CHIP	0.01MF		507	C612	1-163-035-00	CERAMIC CHIP			50V
C226	1-163-038-00	CERAMIC CHIP			25V	C613 C614	1-163-017-00 1-123-617-00	CERAMIC CHIP		10%	50V
C228	1-163-021-00	CERAMIC CHIP		10%	50V	C615	1-163-035-00	ELECT CERAMIC CHIP	10MF	20%	16V 50V
C229	1-124-907-00	ELECT	10MF	20%	50V	C616	1-123-610-00	ELECT	0.47MF	20%	50V
C230	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V		1 110 010 00	CCCO.	0.47111	200	301
0001	1 160 017 00					C617	1-124-258-00	ELECT	3.3MF	20%	50V
C231 C232	1-163-017-00	CERAMIC CHIP		10%	50V	C618	1-124-239-00	ELECT	6.8MF	20%	107
C233	1-163-692-11 1-163-692-11	CERAMIC CHIP		5%	50V	C619	1-163-101-00	CERAMIC CHIP		5%	50V
C234	1-163-117-00	CERAMIC CHIP		5% 5%	50V 50V	C620	1-163-035-00	CERAMIC CHIP			507
C235	1-163-021-00	CERAMIC CHIP		310	50V	C621 C624	1-163-099-00	CERAMIC CHIP		5%	50V
			0.021.11		301	0024	1-163-085-00	CERAMIC CHIP	241	0.25PF	507
C236	1-163-019-00	CERAMIC CHIP		10%	50 V	C627	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C237	1-124-645-11		10MF	20%	16V	C628	1-163-035-00	CERAMIC CHIP			507
C238 C239	1-124-002-11		1MF	20%	50V	C629	1-123-617-00	ELECT	10MF	20%	167
C240	1-163-021-00 1-163-033-00	CERAMIC CHIP		1.00	50V	C630	1-163-035-00	CERAMIC CHIP			50 V
0240	1-103-033-00	CERAMIC CHIP	0.022MF	10%	25 V	C632	1-163-035-00	CERAMIC CHIP			50V
C241	1-163-033-00	CERAMIC CHIP	0.022MF	10%	257	C633	1-163-035-00	CERAMIC CHIP	0.047MF		507
C242	1-163-017-00			10%	50V	C634	1-163-035-00	CERAMIC CHIP	0.047MF		FOW
C243	1-124-648-00	ELECT	4.7MF	20%	35V	C635	1-123-617-00	ELECT	10MF	20%	50V 16V
C244	1-124-907-00	ELECT	10MF	20%	50V	C636	1-163-035-00	CERAMIC CHIP		200	50V
C245	1-163-038-00	CERAMIC CHIP	0.1MF		257	C637	1-163-035-00	CERAMIC CHIP			50V
C246	1 162 025 00	CCDAMIC OUTD	0.04745	4.00		C638	1-163-035-00	CERAMIC CHIP			50V
C247	1-163-035-00 1-124-656-00	CERAMIC CHIP		10%	257	C639	1-123-617-00	ELECT	10MF	20%	16V
C248	1-163-021-00	CERAMIC CHIP	2.2MF	20%	50V						
C249	1-124-499-11	ELECT		20%	50V 50V	C645	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C250	1-163-035-00	CERAMIC CHIP	0.047MF	10%	257	C646 C647	1-163-035-00	CERAMIC CHIP	0.047MF		50V
				20,0		C648	1-163-035-00 1-163-035-00	CERAMIC CHIP			50V
C251	1-163-035-00		0.047MF	10%	257	C649	1-163-035-00	CERAMIC CHIP			50V 50V
C255	1-124-445-00		100MF	20%	16V	C650		CERAMIC CHIP			50V 50V
C256	1-124-445-00		100MF	20%	16V						
C257 C258	1-124-927-11		4.7MF	20%	50V	C651	1-163-035-00	CERAMIC CHIP	0.047MF		50V
0230	1-124-904-00	ELECT	2.2MF	20%	50V	C652	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C259	1-163-021-00	CERAMIC CHIP	O OIME	10%	50V	C653		CERAMIC CHIP			50V
C260	1-163-021-00			106	50V 50V	C654	1-163-035-00	CERAMIC CHIP		1.00	50V
C261	1-163-035-00			10%	257	C701 C702	1-163-021-00	CERAMIC CHIP	U.U1MF		50V
						C702	1-163-035-00 1-163-141-00	CERAMIC CHIP		10% 5%	25V
					- 1	0,00	1 103-141-00	CERAMIC CHIP	O * OOTHIE	36	50V

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description	Remark
C704 C705 C706 C707 C708	1-163-021-00 1-163-033-00 1-163-033-00 1-124-908-11 1-163-017-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.022MF CERAMIC CHIP 0.022MF ELECT 22MF CERAMIC CHIP 0.0047MF	10% 10% 10% 20% 10%	50V 25V 25V 25V 50V	CN019 CN020 CN021	*1-564-005-00 *1-564-004-00	PIN, CONNECTOR 3P PIN, CONNECTOR 2P PIN, CONNECTOR 6P PIN, CONNECTOR 5P PIN, CONNECTOR 2P	
C709 C710 C711 C712 C713	1-163-035-00 1-124-256-00 1-163-034-00 1-163-105-00 1-163-123-00	CERAMIC CHIP 0.047MF ELECT 1.5MF CERAMIC CHIP 0.033MF CERAMIC CHIP 33PF CERAMIC CHIP 180PF	10% 20% 10% 5% 5%	25V 50V 25V 50V 50V	CN212 CN213 CN214	*1-564-010-11 *1-564-014-00	PIN, CONNECTOR 2P PIN, CONNECTOR 11P PIN, CONNECTOR 4P PIN, CONNECTOR 6P PIN, CONNECTOR 6P	
C714 C715 C716 C717 C718	1-163-271-00 1-163-038-00 1-163-038-00 1-163-038-00 1-163-021-00	CERAMIC CHIP 680PF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.01MF	5%	50V 25V 25V 25V 50V	CN217 CN601 CN603	*1-564-006-11 *1-564-002-00 *1-564-006-11 *1-564-015-00 *1-564-007-00	PIN, CONNECTOR 5P	
C719 C720 C721 C722	1-124-904-00 1-163-038-00 1-163-145-00 1-163-101-00	ELECT 2.2MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.0015MF CERAMIC CHIP 22PF	20% 5% 5%	50V 25V 50V 50V			PIN, CONNECTOR 2P PIN, CONNECTOR 3P DE	
C723 C724 C725 C726 C727 C728	1-163-021-00 1-163-141-00 1-163-111-00 1-163-021-00 1-124-904-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.001MF CERAMIC CHIP 56PF CERAMIC CHIP 470PF CERAMIC CHIP 0.01MF ELECT 2.2MF	10% 5% 5% 5% 20%	50V 50V 50V 50V 50V	D020 D021 D060 D080 D081	8-719-101-23 8-719-101-23 8-719-911-19 8-719-100-03 8-719-100-03		
C729 C730 C731 C732 C733	1-163-038-00 1-163-123-00 1-163-121-00 1-163-265-91 1-163-111-00	CERAMIC CHIP 0.1MF CERAMIC CHIP 180PF CERAMIC CHIP 150PF CERAMIC CHIP 390PF CERAMIC CHIP 56PF	5% 5% 5%	25V 50V 50V 50V 50V	D082 D106 D107 D108 D120	8-719-100-05 8-719-106-71 8-719-106-71 8-719-106-71 8-719-100-03	DIODE RD12M-B2 DIODE RD12M-B2	
C734 C735 C736 C740	1-163-268-00 1-163-035-00 1-163-021-00 1-124-904-00	CERAMIC CHIP 510PF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF	5% 10% 10% 20%	50V 25V 50V 50V	D203 D204 D205 D206 D208	8-719-200-27 8-719-100-03 8-719-801-48 8-719-100-03 8-719-100-03	DIODE E10DS2 DIODE 1S2835 DIODE 1SS193 DIODE 1S2835 DIODE 1S2835	
CONNECTOR					D209	8-719-100-05	DIODE 1S2837 DIODE 1SS123	
CN002 CN003 CN004	*1-564-006-11 *1-564-003-00 *1-564-001-11	PIN, CONNECTOR 7P PIN, CONNECTOR 7P PIN, CONNECTOR 4P PIN, CONNECTOR 2P PIN, CONNECTOR 5P			D211 D212 D213 D214	8-719-101-23 8-719-100-03 8-719-100-03 8-719-100-03	DIODE 1S2835 DIODE 1S2835	
CN006 CN007 CN008	*1-564-002-00 *1-564-004-00 *1-564-001-11	PIN, CONNECTOR 3P PIN, CONNECTOR 5P PIN, CONNECTOR 2P PIN, CONNECTOR 7P			D216 D217 D218 D220	8-719-101-23 8-719-801-48	DIODE 1SS123 DIODE 1SS193 DIODE 1S2837	
CN011 CN012 CN013	*1-564-004-00 *1-564-006-11 *1-564-002-00	PIN, CONNECTOR 7P PIN, CONNECTOR 3P			D221 D222 D223 D225 D226	8-719-200-27 8-719-200-27 8-719-100-05 8-719-801-48 8-719-100-03	DIODE E10DS2 DIODE E10DS2 DIODE 1S2837 DIODE 1SS193 DIODE 1S2835	
CN015 CN016	*1-564-001-11	PIN, CONNECTOR 4P PIN, CONNECTOR 3P PIN, CONNECTOR 2P PIN, CONNECTOR 2P			D227 D230 D231 D232	8-719-105-82 8-719-801-48	DIODE 1SS193 DIODE RD5.1M DIODE 1SS193 DIODE 1SS123	

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
D233 D390 D391 D392 D393	8-719-100-05 8-719-100-03 8-719-801-48	DIODE 1SS193 DIODE 1S2837 DIODE 1S2835 DIODE 1SS193 DIODE 1S2837		IC600 IC601 IC602	8-759-200-78 8-752-010-20 8-752-321-97 8-759-911-18 8-759-927-98	IC CX20102 IC CXD10660	
D501 D502 D600 D601 D603	8-719-100-05 8-719-108-24	DIODE 1SS220 DIODE 1S2837 DIODE 1SS223 DIODE 1S2837 DIODE 1S2835		IC605 IC606 IC701	8-759-911-19 8-752-010-30 8-759-915-30 8-759-928-56 8-759-193-24	IC CX20103 IC CX23078 IC CXA1042M	
D604 D701 D702	8-719-100-05	DIODE 1S2837 DIODE 1S2837 DIODE 1S2835		J101	<u>JAC</u> 1-507-678-21		
	FIL	TER		J102 J103	1-507-678-21 1-562-732-11		
FL701 FL702	1-235-829-11 1-235-830-11	BPF (15KHz) BPF (45KHz)		COIL			
	<u>IC</u>			L601 L602	1-408-421-00	MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH	
IC002 IC003	8-752-800-91 8-759-112-01	IC CXP5048H-069Q IC CXP5048H-070Q IC UPD75104G-519-1B		L603 L604 L605	1-408-421-00 1-408-421-00 1-408-421-00	MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH	
IC004 IC005	8-759-201-01 8-759-201-61	IC TC4066BF IC TC40H004F		L606 L607 L608	1-408-421-00	MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH	
IC007 IC008	8-759-801-60 8-759-913-67 8-759-908-81	IC LB1640N IC MB3763P		L609 L610	1-408-421-00		
IC010 IC011	8-759-920-94 8-759-200-68	IC MB3763PF IC MSM6411B-19RS IC TC4011BF		L611	1-408-421-00	MICRO INDUCTOR 100UH	
70010	0 750 001 50						
	8-759-201-53	IC TC40H000F					
	8-759-111-62 8-759-920-94	IC UPD7566G-506 IC MSM6411B-19RS		PS001/A	1-532-727-11	LINK, IC (ICP-N5)	
IC201	8-759-803-47	IC LA5005M		PS003/A	1-532-685-00	LINK, IC (ICP-N20)	
IC202	8-759-100-94	IC UPC358G2		PS201 <u>A</u>	.1-532-685-00	LINK, IC (ICP-N25) LINK, IC (ICP-N20)	
	8-759-929-55	IC MB64H428PF			TRA	NSISTOR	
IC205	8-759-932-07 8-759-701-43	IC MB674101PF					
IC207	8-759-202-45	IC NJM3414D IC CX20114		0010	8-729-901-01	TRANSISTOR DTC144EK	
IC208	8-759-802-79	IC LB1616M		Q011 Q012	8-729-901-01	TRANSISTOR DTC144EK	
		10 10101011		0012	8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK	
IC209	8-759-100-94	IC UPC358G2			8-729-901-01	TRANSISTOR DTC144EK	
IC210	8-752-003-50	IC CX20035		•		THE STORY OF STORY	
10211	8-759-925-66	IC BA6303F		Q015	8-729-901-06	TRANSISTOR DTA144EK	
IC212	8-759-701-39 8-759-201-01	IC NJM3403AM		Q020	8-729-901-05	TRANSISTOR DTA124EK	
10215	0-759-201-01	1C 1C4000BF		Q021		TRANSISTOR DTC144EK	
IC214	8-759-201-00	IC TC4052BF		Q022 Q023	8-729-901-05 8-729-199-92	TRANSISTOR DTA124EK	
IC215	8-759-100-94	IC UPC358G2		QUES	0-162-133-36	TRANSISTOR 2SD999	
IC216	8-759-200-81	IC TC4053BF		Q054	8-729-901-01	TRANSISTOR DTC144EK	
IC217	8-759-200-81	IC TC4053BF			8-729-901-01	TRANSISTOR DTC144EK	
IC218	8-759-200-81	IC TC4053BF		Q060	8-729-901-06	TRANSISTOR DTA144EK	
IC219	8-759-100-94	IC HDC3E9C3			8-729-901-01	TRANSISTOR DTC144EK	
	8-759-200-90	IC UPC358G2 IC TC4538BF		Q071	8-729-374-02	TRANSISTOR 2SB740	
IC500	8-759-111-96	IC UPD75106G-518-1B		00.80	9.720.001.01	TRANSISTOR DEGLARS	
IC501	8-759-200-81	IC TC4053BF		Q080 Q081	8-729-901-01 8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK	

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	<u>n</u>		Remark
0082	8-729-901-01	TRANSISTOR DTC144EK		0243	8-729-901-01	DOTSISHAD	DTC144EK		
0083	8-729-100-67			0244	8-729-901-01				
Q084		TRANSISTOR DTC144EK		0245	8-729-901-06				
Q085	8-729-901-01	TRANSISTOR DTC144EK		0246	8-729-901-01				
Q086	8-729-100-76	TRANSISTOR 2SA812		Q248	8-729-901-01	TRANSISTOR	DTC144EK		
	0.700.000			Q249	8-729-901-06				
Q087		TRANSISTOR DTC144EK		Q250	8-729-100-67	TRANSISTOR	2SC1623-L	7	
Q088 Q090	8-729-100-76 8-729-901-01			0051	0 700 100 67	TRANSTOTOR	0001600 1		
0090	8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK		Q251 Q252	8-729-100-67 8-729-100-76	TRANSISTOR	25C1623-L	/	
0103		TRANSISTOR DTA144EK		0253	8-729-100-76	TRANSISTOR	25A012		
•				0254	8-729-901-01	TRANSISTOR	DTC144FK		
Q120	8-729-901-01	TRANSISTOR DTC144EK		0256	8-729-901-01				
0121	8-729-901-01	TRANSISTOR DTC144EK		Q257	8-729-901-06				
0122	8-729-901-01	TRANSISTOR DTC144EK		Q258	8-729-901-06	TRANSISTOR	DTA144EK		
0123		TRANSISTOR DTC144EK		2252	0 700 400 00				
Q201	8-729-901-04	TRANSISTOR DTA114EK		0260	8-729-199-92				
Q202	8-729-900-53	TRANSISTOR DTC114EK		Q261 Q262	8-729-199-92 8-729-199-92				
0203	8-729-201-78	TRANSISTOR 2SD1406		0263	8-729-901-06				
0204	8-729-100-67	TRANSISTOR 2SC1623-L7		0264	8-729-901-04	TRANSISTOR	DTA114FK		
Q205	8-729-100-66	TRANSISTOR 2SC1623		0280	8-729-100-67			7	
Q206	8-729-804-67	TRANSISTOR 2SB1133-R		Q281	8-729-901-01	TRANSISTOR	DTC144EK		
0007	0 700 001 00								
0207		TRANSISTOR DTA144EK		Q282	8-729-901-01	TRANSISTOR	DTC144EK		
Q208 Q209	8-729-100-76 8-729-201-78	TRANSISTOR 2SA812		Q390	8-729-901-01	TRANSISTOR	DTC144EK		
0210	8-729-901-01	TRANSISTOR 2SD1406 TRANSISTOR DTC144EK		Q401 Q480	8-729-901-01 8-729-900-89	TRANSISTUR	DTC144EK		
Q211		TRANSISTOR DTC144EK		0481	8-729-900-89	TRANSISTOR	DTC144ES		
•				0482	8-729-900-89	TRANSISTOR	DTC144ES		
Q212	8-729-105-29	TRANSISTOR 2SA1385		Q500	8-729-901-01				
0213	8-729-100-67	TRANSISTOR 2SC1623-L7							
Q214		TRANSISTOR DTC144EK		Q501	8-729-901-01	TRANSISTOR	DTC144EK		
Q215 Q216	8-729-901-01	TRANSISTOR DTC144EK		0502	8-729-901-01	TRANSISTOR	DTC144EK		
QZIO	0-729-901-01	TRANSISTOR DTC144EK		0601 0602	8-729-100-67 8-729-901-01	TRANSISTUR	25C1623-L/		
Q217	8-729-901-01	TRANSISTOR DTC144EK		0604	8-729-901-06				
Q218	8-729-113-33			0605	8-729-901-01				
Q219	8-729-113-33	TRANSISTOR 2SB733-4		0606	8-729-901-01				
Q220	8-729-100-76	TRANSISTOR 2SA812							
Q221	8-729-100-76	TRANSISTOR 2SA812		Q701	8-729-100-67				
0222	8-720 177 22	TRANSISTOR SCR772 A		0702	8-729-100-67	TRANSISTOR	2SC1623-L7		
0223	8-729-177-33	TRANSISTOR 2SD773-4 TRANSISTOR 2SC1623-L7		0703 0704	8-729-901-01 8-729-100-76				
0224	8-729-177-33	TRANSISTOR 2SD773-4		0705	8-729-100-76	TRANSISTOR	2501623-17		
Q225	8-729-100-67	TRANSISTOR 2SC1623-L7		0706	8-729-100-67	TRANSISTOR	2SC1623-1.7		
Q226	8-729-901-01	TRANSISTOR DTC144EK		Q707	8-729-100-67	TRANSISTOR	2SC1623-L7		
00.07	0 700 000 0								
Q227 Q228		TRANSISTOR DTA144EK		0708	8-729-100-67	TRANSISTOR	2SC1623-L7		
Q229		TRANSISTOR DTC144EK TRANSISTOR DTA144EK		0709	8-729-100-76				
Q230	8-729-901-00	TRANSISTOR DTG144EK		Q710 Q711	8-729-100-67 8-729-100-67	TRANSISTOR	25C1623-L/		
Q232	8-729-901-06	TRANSISTOR DTA144EK		Q711	8-729-901-01	TRANSISTOR	DTC144FK		
		7.1801		Q713	8-729-100-67				
0233	8-729-901-01	TRANSISTOR DTC144EK		Q714	8-729-901-01				
0235	8-729-901-01	TRANSISTOR DTC144EK		0715	8-729-100-76	TRANSISTOR	2SA812		
Q236 Q237	8-729-901-01	TRANSISTOR DTC144EK		Q716	8-729-100-67	TRANSISTOR			
Q237 Q238	8-729-901-06 8-729-901-01	TRANSISTOR DTA144EK TRANSISTOR DTC144EK		Q717	8-729-901-01	TRANSISTOR	DTC144EK		
40	○ /LJ-301=01	INDIANTED OF THE PROPERTY OF T			DEC	ISTOR			
Q239	8-729-901-01	TRANSISTOR DTC144EK			KES	1310K			
Q240	8-729-901-01	TRANSISTOR DTC144EK		R001	1-216-073-00	METAL CHIP	10K 59	% 1/10W	
Q242	8-729-901-01	TRANSISTOR DTC144EK		R002	1-216-073-00		10K 5		

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R003	1-216-073-00	METAL CHIP	10K	5% 5%	1/10W		R098	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R004 R005	1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP	10K 10K	5%	1/10W 1/10W		R099 R100	1-216-073-00 1-216-025-00	METAL CHIP	10K 100	5% 5%	1/10W 1/10W	
R006	1-216-073-00	METAL CHIP	10K	5%	1/10W		R101	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R007	1-216-073-00	METAL CHIP	10K	5%	1/10W		R102	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R008	1-216-073-00	METAL CHIP	10K	5%	1/10W		R106	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R010	1-216-073-00	METAL CHIP	10K	5%	1/10W		R120	1-216-073-00	METAL CHIP	10K	5%	1/10W	
RO11	1-216-073-00	METAL CHIP	10K	5%	1/10W		R121	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R012	1-216-073-00	METAL CHIP	10K	5%	1/10W		R123	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R013	1-216-081-00	METAL CHIP	22K	5%	1/10W		R151	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R014	1-216-061-00	METAL CHIP	3.3K	5%	1/10W		R152	1-216-073-00	METAL CHIP	10K	5%	1/10W	
RO15	1-216-081-00	METAL CHIP	22K	5%	1/10W		R153	1-216-073-00	METAL CHIP	1 OK	5%	1/10W	
R016	1-216-073-00	METAL CHIP	10K	5%	1/10W		R154	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R018	1-216-073-00	METAL CHIP	10K	5%	1/10W		R155	1-216-073-00	METAL CHIP	10K	5%	1/10W	
RO19	1-216-073-00	METAL CHIP	10K	5%	1/10W		R156	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R020	1-216-073-00	METAL CHIP	1 OK	5%	1/10W		R157	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R021	1-216-295-00	METAL CHIP	0	5%	1/10W		R158	1-216-073-00	METAL CHIP	10K	5% 5%	1/10W	
R022 R023	1-216-073-00 1-216-073-00	METAL CHIP	10K 10K	5% 5%	1/10W 1/10W		R160 R161	1-216-073-00 1-216-073-00	METAL CHIP	10K 10K	5% 5%	1/10W 1/10W	
R024	1-216-041-00	METAL CHIP	470	5%	1/10W		R162	1-216-073-00	METAL CHIP	10K	5%	1/10W	
0025	1 216 073 00	METAL CUID	1.01/	Εα	1 /1 01/		D162	1 216 072 00	METAL CUID	1.04	гα	1./100	
R025 R026	1-216-073-00 1-216-073-00	METAL CHIP	10K 10K	5% 5%	1/10W 1/10W		R163	1-216-073-00 1-216-061-00	METAL CHIP	10K 3.3K	5% 5%	1/10W 1/10W	
R027	1-216-073-00	METAL CHIP	10K	5%	1/10W		R171	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R028	1-216-073-00	METAL CHIP	10K	5%	1/10W		R200	1-246-403-00	CARBON	1.2	5%	1/4W	
R029	1-216-073-00	METAL CHIP	10K	5%	1/10W		R202	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R030	1-216-073-00	METAL CHIP	10K	5%	1/10W		R203	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
RO31	1-216-073-00	METAL CHIP	10K	5%	1/10W		R204	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R032	1-216-073-00	METAL CHIP	1 OK	5%	1/10W		R205	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R033	1-216-073-00	METAL CHIP	10K	5%	1/10W		R206	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R034	1-216-073-00	METAL CHIP	10K	5%	1/10W		R207	1-216-049-00	METAL CHIP	1K	5%	1/10W	
RO39	1-216-073-00	METAL CHIP	10K	5%	1/10W		R208	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R040	1-216-295-00	METAL CHIP	0	5%	1/10W		R209	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R050 R051	1-216-073-00	METAL CHIP	10K	5% 5%	1/10W		R210	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R052	1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP	10K 10K	5%	1/10W 1/10W		R211 R212	1-216-295-00 1-216-073-00	METAL CHIP	0 10K	5% 5%	1/10W 1/10W	
R058	1-216-073-00	METAL CHIP	10K	5%	1/10W		R214	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R070 R071	1-216-081-00 1-216-051-00	METAL CHIP	22K 1.2K	5% 5%	1/10W 1/10W		R215 R216	1-216-113-00 1-216-663-11	METAL CHIP	470K 3.3K	5%	1/10W 1/16W	
R072	1-247-712-11	CARBON	820	5%	1/4W		R217	1-216-669-11	METAL CHIP	5.6K	0.50%		
R073	1-249-447-11	CARBON	1	5%	1/4W		R218	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R079	1-216-097-00	METAL CHIP	100K	5%	1/10W		R219	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R080	1-216-001-00	METAL CHIP	1000	5%	1/10W		R220	1-216-025-00	METAL CHIP	100	5%	1/10W	
R081	1-216-081-00		22K	5%	1/10W		R221	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R082	1-216-065-00		4.7K	5%	1/10W		R222	1-216-295-00	METAL CHIP	0	5%	1/10W	
R083	1-216-049-00	METAL CHIP	1K	5%	1/10W		R223	1-216-025-00	METAL CHIP	100	5%	1/10W	
R084	1-216-025-00	METAL CHIP	100	5%	1/10W		R224	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R085	1-216-073-00		10K	5%	1/10W		R225	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R086	1-216-097-00		100K	5%	1/10W		R226	1-216-073-00	METAL CHIP	1 0K	5%	1/10W	
R087 R088	1-216-073-00		10K	5% 5°	1/10W		R227	1-216-081-00	METAL CHIP	22K	5%	1/10W	
	1-216-089-00	METAL CHIP	47K	5%	1/10W		R228	1-216-033-00	METAL CHIP	220	5%	1/10W	
R089	1-216-073-00		10K	5%	1/10W		R229	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R090	1-216-073-00		10K	5%	1/10W		R230	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R097	1-216-113-00	METAL CHIP	470K	5%	1/10W		J R231	1-216-049-00	METAL CHIP	1K	5%	1/ 10W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	<u>Description</u>				Remark
R232 R233 R234 R235 R236	1-216-304-11 1-216-304-11 1-216-304-11 1-216-295-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3 3.3 3.3 0 100K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R285 R286 R287 R288 R289	1-216-061-00 1-216-073-00 1-216-049-00 1-216-049-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 10K 1K 1K 0	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R237 R238 R239 R240 R241	1-216-068-00 1-216-069-00 1-216-675-11 1-216-683-11 1-216-667-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	6.2K 6.8K 10K 22K 4.7K		1/10W 1/10W 1/16W 1/16W 1/16W		R290 R291 R292 R293 R294	1-216-073-00 1-216-073-00 1-216-295-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1 OK 1 OK 0 1 OK 1 OK	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R242 R243 R244 R245 R246	1-216-683-11 1-216-681-11 1-216-681-11 1-216-121-00 1-216-681-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 18K 18K 1M 18K	0.50% 0.50% 5%	1/16W 1/16W 1/16W 1/10W 1/16W		R295 R296 R297 R298 R299	1-216-103-00 1-216-121-00 1-216-097-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	180K 1M 100K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R247 R248 R249 R250 R251	1-216-080-00 1-216-080-00 1-216-080-00 1-216-080-00 1-216-080-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 20K 20K 20K 20K 20K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R300 R301 R303 R305 R306	1-216-073-00 1-216-073-00 1-216-073-00 1-216-085-00 1-216-077-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 33K 15K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R252 R253 R254 R255 R256	1-216-080-00 1-216-080-00 1-216-080-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 20K 20K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R307 R308 R309 R310 R311	1-216-043-00 1-216-049-00 1-216-073-00 1-216-049-00 1-216-113-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560 1K 10K 1K 470K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R257 R258 R259 R260 R261	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1 OK 1 OK 1 OK 1 OK 1 OK	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R312 R313 R314 R315 R316	1-216-115-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R262 R263 R264 R265 R266	1-216-080-00 1-216-073-00 1-216-033-00 1-216-057-00 1-216-150-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 10K 220 2.2K 10	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/8W		R317 R318 R319 R320 R321	1-216-073-00 1-216-073-00 1-216-085-00 1-216-685-11 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 33K 27K 10K	5% 5% 5% 0.50%	1/10W 1/10W 1/10W 1/16W 1/10W	
R267 R268 R269 R270 R271	1-216-073-00 1-216-150-00 1-216-055-00 1-216-073-00 1-216-025-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10 1.8K 10K 10O	5% 5% 5% 5% 5%	1/10W 1/8W 1/10W 1/10W 1/10W		R322 R323 R324 R326 R327	1-216-089-00 1-216-073-00 1-216-099-00 1-216-109-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 10K 120K 330K 3.3K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R272 R273 R274 R275 R276	1-216-041-00 1-216-073-00 1-216-085-00 1-216-073-00 1-216-085-00	METAL CHIP	470 10K 33K 10K 33K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R328 R329 R330 R331 R332 R333	1-216-091-00 1-216-117-00 1-216-117-00 1-216-081-00 1-216-115-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	56K 680K 680K 22K 560K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W 1/10W	
R277 R278 R279 R280 R281	1-216-073-00 1-216-071-00 1-216-061-00 1-216-061-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP	10K 8.2K 3.3K 3.3K 3.3K	5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R334 R335 R336 R337	1-216-115-00 1-216-057-00 1-216-083-11 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560K 2.2K 27K 10K	5% 5% 5%	1/10V 1/10V 1/10V 1/10V	
R282 R283 R284	1-216-061-00 1-216-073-00 1-216-061-00	METAL CHIP	3.3K 10K 3.3K	5%	1/10W 1/10W 1/10W		R338 R339 R340 R341	1-216-121-00 1-216-089-00 1-216-663-11 1-216-667-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1M 47K 3.3K 4.7K	5% 5% 0.50% 0.50%		

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	<u>Description</u>				Remark
R342	1-216-073-00	METAL CHIP	10K 10K	5% 5%	1/10W		R401 R402	1-216-073-00 1-216-295-00	METAL CHIP METAL CHIP	10K 0	5% 5%	1/10W 1/10W	
R343 R344	1-216-073-00 1-216-049-00	METAL CHIP METAL CHIP	1K	5%	1/10W 1/10W		R404	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R345	1-216-105-00	METAL CHIP	220K	5%	1/10W		R405	1-216-061-00	METAL CHIP	3.3K	5% 5%	1/10W	
R346	1-216-105-00	METAL CHIP	220K	5%	1/10W		R406	1-216-295-00	METAL CHIP	0	J/o	1/10W	
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R408	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R348 R349	1-216-089-00 1-216-049-00	METAL CHIP METAL CHIP	47K 1K	5% 5%	1/10W 1/10W		R470	1-216-295-00 1-217-587-11	METAL CHIP CARBON	0	5%	1/10W 1/4W	
R350	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R477	1-217-587-11	CARBON	0		1/4W	
R351	1-216-073-00	METAL CHIP	10K	5%	1/10W		R478	1-217-587-11	CARBON	0		1/4W	
R352	1-216-685-11	METAL CHIP	27K		1/16W		R502	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R353	1-216-663-11		3.3K		1/16W		R504 R505	1-216-061-00 1-216-061-00	METAL CHIP	3.3K 3.3K	5% 5%	1/10W 1/10W	
R354 R355	1-216-689-11 1-216-089-00	METAL CHIP METAL CHIP	39K 47K	5%	1/16W 1/10W		R506	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R356	1-216-693-11		56K		1/16W		R508	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R357	1-216-691-11	METAL CHIP	47K	0.50%	1/16W		R509	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R358	1-216-663-11	METAL CHIP	3.3K		1/16W		R510	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R359 R360	1-216-685-11 1-216-073-00	METAL CHIP METAL CHIP	27K 10K	5%	1/16W 1/10W		R511 R514	1-216-081-00 1-216-073-00	METAL CHIP	22K 10K	5% 5%	1/10W 1/10W	
R361	1-216-085-00	METAL CHIP	33K	5%	1/10W		R515	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R362	1-216-073-00	METAL CHIP	10K	5%	1/10W		R516	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W		R517	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R364	1-216-085-00	METAL CHIP	33K 100K	5% 5%	1/10W 1/10W		R518 R519	1-216-073-00 1-216-085-00	METAL CHIP	10K 33K	5% 5%	1/10W 1/10W	
R365 R366	1-216-097-00 1-216-097-00	METAL CHIP METAL CHIP	100K	5%	1/10W		R530	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R367	1-216-089-00	METAL CHIP	47K	5%	1/10W		R607	1-216-045-00	METAL CHIP	680	5%	1/10W	
R368	1-216-085-00	METAL CHIP	33K	5%	1/10W		R608	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R370	1-216-097-00	METAL CHIP	100K	5%	1/10W		R609	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R371 R372	1-216-073-00 1-216-681-11	METAL CHIP METAL CHIP	10K 18K	5% 0.50%	1/10W 1/16W		R610 R611	1-216-049-00 1-216-001-00	METAL CHIP	1K 10	5% 5%	1/10W 1/10W	
										1 EV	5%	1/10W	
R373 R375	1-216-075-00 1-216-697-11	METAL CHIP	12K 82K	5% 0.50%	1/10W 1/16W		R612 R613	1-216-053-00 1-216-041-00	METAL CHIP	1.5K 470	5%	1/10W	
R376	1-216-107-00		270K	5%	1/10W		R614	1-216-045-00	METAL CHIP	680	5%	1/10W	
R377	1-216-107-00		270K	5%	1/10W		R615	1-216-051-00	METAL CHIP	1.2K	5% 5%	1/10W 1/10W	
R378	1-216-073-00	METAL CHIP	10K	5%	1/10W		R616	1-216-049-00	METAL CHIP	1K			
R379	1-216-073-00		10K	5%	1/10W		R617	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R380 R381	1-216-115-00 1-216-115 - 00		560K 560K	5% 5%	1/10W 1/10W		R618 R619	1-216-071-00 1-216-051-00	METAL CHIP	8.2K 1.2K	5% 5%	1/10W 1/10W	
R382	1-216-101-00		150K	5%	1/10W		R620	1-216-645-11	METAL CHIP	560	0.50%	1/16W	
R383	1-216-683-11	METAL CHIP	22K	0.50%	1/16W		R621	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R384	1-216-667-11		4.7K		1/16W		R622	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R385 R386	1-216-683-11		22K	0.50%	1/16W		R623 R624	1-216-077-00 1-216-049-00	METAL CHIP	15K 1K	5% 5%	1/10W 1/10W	
R388	1-216-667-11 1-216-073-00	AATT AL CLUED	10K	5%	1/10W		R625	1-216-033-00		220	5%	1/10W	
R390	1-216-073-00		10K	5%	1/10W		R626	1-216-061-00	METAL CHIP		5%	1/10W	
R391	1-216-097-00		100K	5%	1/10W		R627	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R392	1-216-065-00		4.7K	5%	1/10W		R628	1-216-079-00		18K	5%	1/10W	
R394 R395	1-216-035-00 1-216-073-00		270 10K	5% 5%	1/10W 1/10W		R630 R632	1-216-295-00 1-216-085-00	METAL CHIP	0 33K	5% 5%	1/10W 1/10W	
R396	1-216-693-11		56K		1/16W		R633	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R397	1-216-295 - 00	METAL CHIP	0	5%	1/10W		R634	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R398	1-216-111-00	METAL CHIP	390K	5%	1/10W		R635	1-216-029-00	METAL CHIP	150	5%	1/10W	
R399	1-216-073-00	METAL CHIP	10K	5%	1/10W		I R636	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description Percentage				Remark
R637	1-216-069-00	METAL CHIP	6.8K	5%	1/10W		R741	1-216-061-00		3.3K	5%	1/10W	
R638	1-216-069-00	METAL CHIP	6.8K 10K	5% 5%	1/10W 1/10W		R742 R743	1-216-061-00 1-216-065-00	METAL CHIP	3.3K 4.7K	5% 5%	1/10W 1/10W	
R640 R641	1-216-073-00 1-216-085-00	METAL CHIP	33K	5%	1/10W		R744	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R650	1-216-041-00	METAL CHIP	470	5%	1/10W		R745	1-216-088-00	METAL CHIP	43K	5%	1/10W	
R652	1-216-109-00	METAL CHIP	330K	5%	1/10W		R746	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R653	1-216-109-00	METAL CHIP	330K	5%	1/10W		R747	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R660	1-216-073-00	METAL CHIP	10K	5%	1/10W		R748	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R661	1-216-073-00	METAL CHIP	10K	5%	1/10W		R749	1-216-049-00	METAL CHIP	1K	5% 5%	1/10W	
R662	1-216-033-00	METAL CHIP	220	5%	1/10W		R750	1-216-049-00	METAL CHIP	1K	36	1/10W	
R663	1-216-033-00	METAL CHIP	220	5%	1/10W		R751	1-216-081-00	METAL CHIP	22K	5% E%	1/10W	
R664 R665	1-216-097-00 1-216-097-00	METAL CHIP	100K 100K	5% 5%	1/10W 1/10W		R752 R753	1-216-081-00 1-216-065-00	METAL CHIP	22K 4.7K	5% 5%	1/10W 1/10W	
R699	1-216-049-00	METAL CHIP	1K	5%	1/10W		R754	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R701	1-216-105-00	METAL CHIP	220K	5%	1/10W		R755	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R702	1-216-081-00	METAL CHIP	22K	5%	1/10W		R756	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R703	1-216-089-00	METAL CHIP	47K	5%	1/10W		R757	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R704	1-216-097-00	METAL CHIP	100K	5%	1/10W		R758	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R705 R706	1-216-085-00 1-216-117-00	METAL CHIP	33K 680K	5% 5%	1/10W 1/10W		R759 R760	1-216-070-00 1-216-069-00	METAL CHIP	7.5K 6.8K	5% 5%	1/10W 1/10W	
R707	1-216-091-00		56K	5%	1/10W		R761	1-216-085-00	METAL CHIP	33K	5% 5%	1/10W	
R708 R709	1-216-073-00 1-216-097-00	METAL CHIP	10K 100K	5% 5%	1/10W 1/10W		R762 R764	1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP	10K 10K	5%	1/10W 1/10W	
R710	1-216-089-00	METAL CHIP	47K	5%	1/10W		1000	1 210 075 00	TIETTIE OTTE	1010	9.0	2, 2011	
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W			VAR	IABLE RESISTOR				
R712	1-216-097-00	METAL CHIP	100K	5%	1/10W		RV201	1-228-998-00	RES, ADJ, MET	AL GLA	ZE 220	K	
R713	1-216-111-00	METAL CHIP	390K	5%	1/10W		RV202	1-228-998-00	RES, ADJ, MET			K	
R715 R716	1-216-049-00 1-216-065-00	METAL CHIP	1K 4.7K	5% 5%	1/10W 1/10W		RV203 RV204	1-228-993-00 1-228-993-00	RES, ADJ, CAR RES, ADJ, CAR				
R717	1-216-061-00	METAL CHIP	3.3K	5%	1/10W		RV205	1-228-995-00	RES, ADJ, CAR				
R718	1-216-061-00	METAL CHIP	3.3K	5%	1/10W		RV206	1-228-995-00	RES, ADJ, MET	AL GLA	7E 22K		
R719	1-216-061-00	METAL CHIP	3.3K	5%	1/10W		RV207	1-228-995-00	RES, ADJ, CAR				
R720	1-216-085-00	METAL CHIP	33K	5%	1/10W		RV208	1-228-995-00	RES, ADJ, MET				
R721 R722	1-216-081-00	METAL CHIP	22K 1K	5% 5%	1/10W 1/10W		RV209 RV210	1-228-989-00 1-228-991-00	RES, ADJ, CAR RES, ADJ, MET			ĸ	
	1-216-049-00	METAL CHIP	IV									K	
R723	1-216-079-00	METAL CHIP	18K	5%	1/10W			1-228-993-00	RES, ADJ, CAR			ν	
R724 R725	1-216-085-00 1-216-045-00	METAL CHIP	33K 680	5% 5%	1/10W 1/10W		RV215 RV216	1-228-991-00 1-228-991-00	RES, ADJ, MET RES, ADJ, MET				
R726	1-216-073-00	METAL CHIP	10K	5%	1/10W		RV217	1-228-997-00	RES, ADJ, MET				
R727	1-216-077-00	METAL CHIP	15K	5%	1/10W		RV218	1-228-997-00	RES, ADJ, MET	AL GLA	ZE 100	K	
R728	1-216-027-00	METAL CHIP	120	5%	1/10W			1-228-991-00	RES, ADJ, CAR				
R729 R730	1-216-035-00	METAL CHIP	270	5%	1/10W		RV602	1-228-991-00	RES, ADJ, CAR				
R731	1-216-039-00 1-216-072-00		390 9.1K	5% 5%	1/10W 1/10W			1-228-997-00	RES, ADJ, CAR RES, ADJ, CAR				
R732	1-216-057-00		2.2K		1/10W				RES, ADJ, CAR				
R733	1-216-051-00	METAL CHIP	1.2K	5%	1/10W			SWI	ТСН				
R734	1-216-049-00	METAL CHIP	1K	5%	1/10W								
R735	1-216-081-00	METAL CHIP	22K	5%	1/10W				SWITCH, SLIDE				
R736 R737	1-216-081-00 1-216-049-00	METAL CHIP	22K 1K	5% 5%	1/10W 1/10W		SW500	1-553-725-21	SWITCH, SLIDE				
								CRY	STAL				
R738 R739	1-216-061-00		3.3K		1/10W		W001	. 567 046 44		- DAMES	1500	,	
R740	1-216-061-00 1-216-065-00		3.3K 4.7K		1/10W 1/10W		X001 X002		OSCILLATOR, C				
	- 210-003-00	DETAL ORIT	7 • / 1	5,0	1/10#		X080		OSCILLATOR, C				
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SP-2 RB-2 AU-22

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
X120 X201 X600	1-567-345-11	OSCILLATOR, VIBRATOR, CF VIBRATOR, LI	RYSTAL (THIUM T	(5.94MHz) FANTALATE (11		C201 C203 C210 C211 C212	1-163-181-00 1-163-181-00 1-163-075-00 1-124-443-00 1-163-075-00	CERAMIC CHIE CERAMIC CHIE CERAMIC CHIE ELECT CERAMIC CHIE	100PF 0.047MF 100MF	5% 5% 20%	50V 50V 50V 10V
	*1-622-469-11					C213	1-124-443-00	ELECT	100MF	20%	50 V 10 V
	CAN	*******				C214 C215	1-163-075-00 1-124-443-00	CERAMIC CHIP	0.047MF 100MF	20%	50V 10V
		ASITOR				C216 C217	1-163-075-00 1-124-443-00	CERAMIC CHIP	0.047MF 100MF	20%	50V 10V
C450 C451	1-124-584-00 1-101-004-00		100MF 0.01MF	20%	10V 50V	C218	1-124-472-11		470MF	20%	107
	CON	INECTOR				C219 C220	1-124-472-11	ELECT	470MF 100MF	20% 20%	10V 10V
CN450	*1-564-012-00	PIN, CONNECT	OR 2P			C224 C225	1-163-075-00 1-163-075-00	CERAMIC CHIP CERAMIC CHIP	0.047MF 0.047MF		50V 50V
	DIO	DE				C226	1-163-075-00	CERAMIC CHIP			50V
D450 D451 D452	8-719-911-19 8-719-911-19 8-719-911-19	DIODE 1SS119 DIODE 1SS119 DIODE 1SS119				C227 C301 C305 C306	1-163-075-00 1-124-443-00 1-124-903-00 1-163-075-00	CERAMIC CHIP ELECT ELECT CERAMIC CHIP	100MF 1MF	20% 20%	50V 10V 50V 50V
	<u>IC</u>					C307	1-130-497-00		0.15MF	5%	50V
IC450	8-759-932-04	IC MB88306P				C308 C309	1-130-497-00 1-163-101-00	MYLAR CERAMIC CHIP		5% 5%	50V 50V
	TRA	NSISTOR				C310 C311	1-163-117-00 1-130-472-00	CERAMIC CHIP MYLAR	100PF 0.0012MF	5% 5%	50V 50V
Q450 Q451 Q452 Q453 Q454	8-729-900-89 8-729-900-89 8-729-900-65 8-729-900-89	TRANSISTOR D TRANSISTOR D TRANSISTOR D TRANSISTOR D TRANSISTOR D	TC144ES TA144ES TA144ES			C312 C313 C314 C321 C401	1-163-117-00 1-130-474-00 1-130-489-00 1-124-610-00 1-124-443-00	CERAMIC CHIP MYLAR MYLAR ELECT ELECT	100PF 0.0018MF 0.033MF 10MF 100MF	5% 5% 5% 20% 20%	50V 50V 50V 50V 10V
Q455 Q456 Q457 Q458	8-729-900-74 8-729-900-74 8-729-900-89 8-729-900-65	TRANSISTOR D TRANSISTOR D TRANSISTOR D TRANSISTOR D	TC143TS TC144ES			C405 C406 C407 C408 C409	1-124-903-00 1-163-075-00 1-130-497-00 1-130-497-00 1-163-101-00	ELECT CERAMIC CHIP MYLAR MYLAR	0.15MF 0.15MF	20% 5% 5%	50V 50V 50V
	RES	ISTOR						CERAMIC CHIP		5%	50V
R450 R451 R452 R453 R454	1-247-429-00 1-247-429-00 1-247-886-00 1-249-438-11 1-249-433-11	CARBON CARBON CARBON CARBON CARBON	1 0K 1 0K 20 0K 5 6K 2 2 K	5% 1/6W 5% 1/6W 5% 1/6W 5% 1/6W 5% 1/6W		C410 C411 C412 C413 C414	1-163-117-00 1-130-472-00 1-163-117-00 1-130-474-00 1-130-489-00	CERAMIC CHIP MYLAR CERAMIC CHIP MYLAR MYLAR	0.0012MF	5% 5% 5% 5% 5%	50V 50V 50V 50V 50V
R455 R456 R457	1-215-477-00 1-247-429-00 1-249-417-11	CARBON	220K 10K 1K	5% 1/6W 5% 1/6W 5% 1/6W		C421 C502 C507 C801 C802		ELECT CERAMIC CHIP ELECT CERAMIC CHIP CERAMIC CHIP	1MF 0.01MF	20% 10% 20% 10% 10%	50V 50V 50V 50V 50V
****	*****	******	******	*******	******		1-163-074-00				
	*A-7060-468-A	(Including t	****** he MK-2	***		C804 C805 C806	1-163-074-00 1-124-903-00 1-163-059-00	CERAMIC CHIP ELECT CERAMIC CHIP CERAMIC CHIP	0.033MF 1MF 0.01MF	10% 10% 20% 10% 10%	25V 25V 50V 50V 50V
	CAP	ACITOR				C822	1-163-059-00			10%	
C101	1-163-075-00		0.047MF	-	50V	C823	1-163-039-00 1-163-074-00 1-163-074-00	CERAMIC CHIP	0.033MF	10% 10% 10%	50V 25V 25V

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description	<u>l</u>		1	Remark
	CERAMIC CHIP 0.01MF	10% 5	50V 50V		*A-7068-025-A 8-759-933-22		COMPLETE			
C840 1-124-892-11 C841 1-163-059-00 C901 1-124-902-00	ELECT 47MF CERAMIC CHIP 0.01MF ELECT 0.47MF	10% 5	0V 50V		TRA	NSISTOR				
	CERAMIC CHIP 0.0033MF ELECT 47MF ELECT 0.47MF	1 5	50 V 50 V 50 V	Q201 Q203 Q204 Q208 Q209	8-729-901-06 8-729-100-67 8-729-901-01 8-729-113-32 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR	2SC1623-L DTC144EK 2SB733			
COI	NECTOR			0210	8-729-100-67			.7		
CN201 *1-564-004-00 CN202 *1-564-003-00 CN204 *1-564-005-00 CN205 *1-564-003-00 CN207 *1-564-002-00	PIN, CONNECTOR 4P PIN, CONNECTOR 6P PIN, CONNECTOR 4P			0211 0212 0213 0301	8-729-100-76 8-729-100-76 8-729-177-32 8-729-109-42 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR	2SA812 2SD773 2SK94-X2	.7		
CN208 *1-564-004-00 CN501 *1-564-004-00 CN801 *1-564-002-00 CN901 *1-564-001-11	PIN, CONNECTOR 5P PIN, CONNECTOR 5P PIN, CONNECTOR 3P			0401 0402 0502 0801	8-729-109-42 8-729-100-67 8-729-901-01 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	2SK94-X2 2SC1623-L DTC144EK 2SC1623-L	.7		
JA	<u>CK</u>			Q802 Q803	8-729-100-76 8-729-100-67	TRANSISTOR	2SC1623-1			
CNJ251 1-507-500-61 CNJ253 1-507-500-61				Q821 Q822 Q823	8-729-100-67 8-729-100-76 8-729-100-67	TRANSISTOR	2SA812		•	
DI	ODE			Q901	8-729-100-76	TRANSISTOR	2SA812			
D2O3 8-719-110-47	DIODE RD18ESB DIODE RD18ESB			2001		ISTOR	•	Ea	1 (10)	
	DIODE RD2.7ES-B			R001 R002 R003	1-216-295-00 1-216-295-00 1-216-295-00		0 0 0	5% 5% 5%	1/10W 1/10W 1/10W	
FL301 1-235-565-21	FILTER, LOW PASS (15KHz)			R004 R005	1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0	5% 5%	1/10W 1/10W	
FL501 1-235-484-11 FL801 1-235-517-21	FILTER, LOW PASS (15KHz) FILTER, BAND PASS (1.5MH FILTER, BAND PASS (228.7 FILTER, BAND PASS (228.7	IZ) '48KHz)		R006 R007 R008	1-216-295-00 1-216-295-00 1-216-295-00		0 0 0	5% 5% 5%	1/10W 1/10W 1/10W	
IC				R009 R010	1-216-295-00 1-216 - 295-00	METAL CHIP	0	5% 5%	1/10W 1/10W	
IC101 8-759-937-21 IC201 8-759-240-52 IC203 8-759-145-58 IC301 8-759-700-40 IC302 8-759-240-51	IC TC4052BP IC UPC4558C IC NJM4560S			R011 R012 R013 R015 R016	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
IC303 8-759-700-40 IC304 8-759-700-40 IC401 8-759-700-40 IC402 8-759-240-51 IC403 8-759-700-40	IC NJM4560S IC NJM4560S IC TC4051BP			R017 R018 R019 R020 R021	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
IC503 8-759-240-53	AF-20 BOARD, COMPLETE IC TC4053BP AD-12 BOARD, COMPLETE			R022 R023 R024 R025 R026	1-216-295-00 1-216-295-00 1-216-965-00 1-216-965-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R027 R028 R029 R030 R031	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R086 R087 R088 R089 R102	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0 10K	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/10W	
R032 R033 R034 R035 R036	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R104 R107 R110 R202 R203	1-216-081-00 1-216-073-00 1-216-073-00 1-249-393-11 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP CARBON METAL CHIP	22K 10K 10K 10 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/10W	
R037 R038 R039 R040 R041	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R205 R206 R207 R210 R211	1-216-097-00 1-216-097-00 1-216-097-00 1-216-085-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 100K 100K 33K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R042 R043 R044 R045 R046	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R216 R217 R218 R220 R221	1-216-097-00 1-216-097-00 1-216-097-00 1-216-081-00 1-216-089-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 100K 100K 22K 47K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R047 R053 R054 R055 R056	1-216-295-00 1-216-295-00 1-216-295-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/10W 1/10W 1/10W 1/8W 1/8W		R230 R233 R236 R237 R238	1-216-061-00 1-216-069-00 1-216-071-00 1-216-073-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 6.8K 8.2K 10K 3.3K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R057 R058 R059 R060 R061	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R240 R241 R242 R244 R305	1-216-061-00 1-216-074-00 1-216-061-00 1-216-081-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 11K 3.3K 22K 0	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R062 R063 R064 R065 R066	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R307 R309 R310 R314 R315	1-216-079-00 1-216-093-00 1-216-099-00 1-247-837-00 1-247-841-00	METAL CHIP METAL CHIP METAL CHIP CARBON CARBON	18K 68K 120K 1.8K 2.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/6W	
R067 R068 R069 R070 R072	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R317 R318 R319 R320 R321	1-215-477-00 1-249-435-11 1-249-433-11 1-215-473-00 1-216-001-00	CARBON CARBON CARBON CARBON METAL CHIP	220K 33K 22K 150K 10	5% 5% 5% 5%	1/5W 1/6W 1/6W 1/5W 1/10W	
R073 R074 R075 R076 R077		METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 1 5% 1	1/8W 1/8W 1/8W 1/8W 1/8W				METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150K 2.7K 1.5K 100 82K	5% 5% 5% 5% 5%	1/L OW 1/L OW 1/L OW 1/L OW 1/L OW	
R078 R079 R080 R081 R082	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 1 5% 1	L/8W 1/8W L/8W 1/8W L/8W		R335 R336 R337	1-247-860-00	CARBON CARBON CARBON METAL CHIP CARBON	9.1K 560 16K 4.7K 3.3K	5% 5% 5% 5% 5%	1/6 W 1/6 W 1/6 W 1/1 OW 1/6 W	
R083 R084 R085	1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0	5% 1	L/8W L/8W L/8W		R340	1-247-844-00	CARBON CARBON CARBON	3.3K 3.6K 6.8K	5% 5% 5%	1/6 W 1/6 W 1/6 W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description			Remark
R346 R347 R349 R350 R351	1-216-025-00 1-216-087-00 1-216-059-00 1-249-425-11 1-249-423-11	METAL CHIP METAL CHIP METAL CHIP CARBON CARBON	100 39K 2.7K 4.7K 3.3K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/6W		R701 R801 R802 R803 R804	1-216-295-00 1-216-057-00 1-216-063-00 1-216-077-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 3.9K 15K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	DW DW
R360 R362 R363 R370 R407	1-215-418-00 1-247-858-00 1-247-861-00 1-216-065-00 1-216-079-00	CARBON CARBON CARBON METAL CHIP METAL CHIP	750 13K 18K 4.7K 18K	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/10W		R805 R806 R807 R808 R809	1-216-097-00 1-216-063-00 1-216-074-00 1-216-049-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 11K 1K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	DW DW DW
R409 R410 R414 R415 R416	1-216-093-00 1-216-099-00 1-247-837-00 1-247-841-00 1-216-295-00	METAL CHIP METAL CHIP CARBON CARBON METAL CHIP	68K 120K 1.8K 2.7K 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/6W 1/6W 1/10W		R821 R822 R823 R824 R825	1-216-057-00 1-216-063-00 1-216-077-00 1-216-073-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 15K 10K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	DM DM DM
R417 R418 R419 R420 R421	1-215-477-00 1-249-435-11 1-249-433-11 1-215-473-00 1-216-001-00	CARBON CARBON CARBON CARBON METAL CHIP	220K 33K 22K 150K 10	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/6W 1/10W		R826 R827 R828 R829 R901	1-216-063-00 1-216-074-00 1-216-049-00 1-216-041-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	11K 1K 470	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	DW DW
R422 R427 R430 R431 R432	1-216-101-00 1-216-059-00 1-216-053-00 1-216-025-00 1-216-095-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150K 2.7K 1.5K 100 82K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R902 R904 R905 R906 R907	1-216-073-00 1-216-089-00 1-216-089-00 1-216-081-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 47K 22K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	IW IW IW
R433 R435 R436 R437 R438	1-247-854-00 1-249-414-11 1-247-860-00 1-216-065-00 1-249-423-11	CARBON CARBON CARBON METAL CHIP CARBON	9.1K 560 16K 4.7K 3.3K	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/6W		R908 R909 R951 R952	1-216-065-00 1-216-089-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 10K 10K	5% 1/10 5% 1/10 5% 1/10 5% 1/10	W W W
R439 R440 R445 R446 R447	1-249-423-11 1-247-844-00 1-249-427-11 1-216-025-00 1-247-869-00	CARBON CARBON CARBON METAL CHIP CARBON	3.3K 3.6K 6.8K 100 39K	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/6W			**************************************	AF-20 BOARD	, COMPLE	TE (IC501)	** ****
R449 R450 R451 R460 R462	1-216-059-00 1-249-425-11 1-249-423-11 1-215-418-00 1-247-858-00	METAL CHIP CARBON CARBON CARBON CARBON	2.7K 4.7K 3.3K 750 13K	5% 5% 5% 5%	1/10W 1/6W 1/6W 1/6W 1/6W		C501 C502 C503 C504 C505	1-163-021-00 1-163-021-00 1-163-137-00 1-124-465-00 1-163-145-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP ELECT CERAMIC CHIP	0.01MF 680PF 0.47MF	10% 20% 10%	50V 50V 50V 50V 50V
R463 R470 R501 R502 R503	1-247-861-00 1-216-065-00 1-216-079-00 1-216-067-00 1-216-063-00	CARBON METAL CHIP METAL CHIP METAL CHIP METAL CHIP	18K 4.7K 18K 5.6K 3.9K	5% 5% 5% 5%	1/6W 1/10W 1/10W 1/10W 1/10W		C506 C507 C508 C509 C510	1-124-123-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP ELECT CERAMIC CHIP	220PF 0.0022MF 100MF	5%	50V 50V 50V 6.3V 50V
R505 R506 R562 R563 R564	1-216-063-00 1-216-049-00 1-216-069-00 1-216-067-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 1K 6.8K 5.6K 4.7K	5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C511 C512 C513 C514 C515	1-163-021-00 1-123-612-00 1-123-306-00 1-123-369-00 1-163-133-00	CERAMIC CHIP ELECT ELECT ELECT CERAMIC CHIP	2.2MF 47MF 4.7MF	20% 20% 20% 5%	50V 50V 6.3V 25V 50V
R565 R566 R570	1-216-057-00 1-216-073-00 1-216-047-00	METAL CHIP METAL CHIP METAL CHIP	2.2K 10K 820	5% 5% 5%	1/10W 1/10W 1/10W		C516 C517 C518	1-123-661-00 1-163-088-00 1-163-017-00	ELECT CERAMIC CHIP CERAMIC CHIP		20% 0.25P 10%	6.3V 50V 50V

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Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
C519 C520 C521 C522 C523	1-163-125-00 1-163-079-00 1-163-020-00 1-163-137-00 1-124-255-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP ELECT	0.039MF 0.0082M	5% 10% F 10% 10% 20%	50V 25V 50V 50V 50V	R517 R518 R519 R520 R521	1-216-073-00 1-216-087-00 1-216-085-00 1-216-121-00 1-216-079-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 5 39K 5 33K 5 1M 5 18K 5	% 1/10W % 1/10W % 1/10W	i ! !
C524 C525 C526 C527 C528	1-124-462-00 1-123-617-00 1-124-638-11 1-123-661-00 1-123-611-00	ELECT ELECT ELECT ELECT ELECT	10MF 10MF 22MF 100MF 1MF	20% 20% 20% 20% 20%	16V 16V 6.3V 6.3V 50V	R522 R523 R524 R525 R526	1-216-097-00 1-216-089-00 1-216-083-00 1-216-079-00 1-216-079-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 5 47K 5 27K 5 18K 5 18K 5	% 1/10W % 1/10W % 1/10W	! ! !
C529 C530 C531 C532 C533	1-123-380-00 1-163-021-00 1-123-661-00 1-123-380-00 1-163-015-00	ELECT CERAMIC CHIP ELECT ELECT CERAMIC CHIP	100MF 1MF	20% 20% 20% F 10%	50V 50V 6.3V 50V 50V	R527 R528 R530	1-216-057-00 1-216-059-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP RIABLE RESISTOR	2.2K 56 2.7K 56 1K 56	% 1/10W	I
0504	1 160 100 00								-		
C534 C535 C536 C539	1-163-109-00 1-163-013-00 1-163-021-00 1-163-088-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.0022M 0.01MF		50V 50V 50V		1-228-994-00	RES, ADJ, CAR RES, ADJ, CAR	BON 10K	***	****
6333	1-103-000-00	CERAMIC CHIP	זייכ	0.25	F 50V	^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^			******	*****	*****
	CON	NECTOR					*A-7068-022-A	AD-12 BOARD,			
	*1-564-318-00 *1-564-318-00						CAP	ASITOR			
	īc					C701	1 122 610 00	FLECT	2045	0.00	C 211
	<u>IC</u>					C701	1-123-618-00	CERAMIC CHIP	22MF 100PF	20% 5%	6.3V 50V
IC501	8-752-013-71	IC CX20137A				C705	1-123-618-00	ELECT	22MF	20%	6.3V
	COI	L				C707 C709	1-123-617-00 1-124-224-00		10MF 47MF	20% 20%	16V 6.3V
L501	1-408-948-00	MICRO INDUCT	OR 220UH			C710 C713	1-163-021-00 1-123-661-00	CERAMIC CHIP	0.01MF 100MF	20%	50V 6.3V
	TRA	NSISTOR				C715	1-123-661-00		100MF	20%	6.3V
0501	0 700 001 01	TRANSTOTOR D	T01 4 4 5 W			C716	1-123-617-00	ELECT	10MF	20%	167
Q501 Q502 Q503	8-729-901-01 8-729-109-42 8-729-901-00	TRANSISTOR D' TRANSISTOR 2: TRANSISTOR D'	SK94-X2			C717	1-123-661-00 1-102-978-00		100MF 220PF	20% 5%	6.3V 50V
						C719	1-163-021-00	CERAMIC CHIP	0.01MF	36	50V
	RES	ISTOR				C720 C721	1-163-021-00 1-124-224-00	CERAMIC CHIP	0.01MF 47MF	20%	50V
R501	1-216-065-00		4.7K	5% 1/10	W	C722	1-163-021-00	CERAMIC CHIP		20%	6.3V 50V
R502 R503	1-216-065-00 1-216-065-00	METAL CHIP		5% 1/10 5% 1/10		C751	1 122 610 00			20%	6. 211
R504	1-216-121-00	METAL CHIP		5% 1/10 5% 1/10		C751 C753	1-123-618-00 1-163-117-00	ELECT CERAMIC CHIP	22MF 100PF	20% 5%	6.3V 50V
R505	1-216-107-00			5% 1/10		C755	1-123-618-00		22MF	20%	6.3V
R506	1-249-416-11	CARRON	920	Eq. 1.161		C757	1-123-617-00	ELECT	10MF	20%	16V
R507	1-249-416-11			5% 1/6W 5% 1/6W			CON	NECTOR			
R508		METAL CHIP	100K	5% 1/10	W						
R509 R510	1-216-075-00 1-216-063-00	METAL CHIP METAL CHIP		5% 1/10 5% 1/10		CN/01	1-566-139-11	CONNECTOR, BO	ARD TO BO	ARD 15P	
							IC				
R511 R512	1-216-057-00	METAL CHIP		5% 1/10		10701		10 0VD3 0774			
R513	1-216-045-00 1-216-059-00	METAL CHIP METAL CHIP		5% 1/10 5% 1/10			8-752-322-57 8-759-914-44	IC CXD1077M IC TL431CLPB			
R514	1-216-061-00	METAL CHIP	3.3K	5% 1/10	W	-3.52					
R515	1-216-061-00	METAL CHIP	3.3K	5% 1/10	W		<u>C01</u>	L			
R516	1-216-059-00	METAL CHIP	2.7K	5% 1/10	W	L701	1-408-421-00	MICRO INDUCTO	R 100UH		

Ref.N	o Part No.	Description			Remark	Ref.No	Part No.	Description				Remark
R701 R703 R711 R713	1-216-077-00 1-216-087-00 1-216-057-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	15K 5% 39K 5% 2.2K 5% 2.2K 5%	1/10W 1/10W 1/10W 1/10W		C655 C656 C657 C658 C659	1-130-490-11 1-163-125-00 1-163-088-00 1-130-479-00 1-163-020-00	MYLAR CERAMIC CHIP CERAMIC CHIP MYLAR CERAMIC CHIP	5PF 0.0047M	I F	5% 10% 0.25PF 5% 10%	50V 50V 50V 50V 50V
R717 R718 R719 R720 R721	1-216-117-00 1-216-029-00 1-216-022-00 1-216-039-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680K 5% 150 5% 75 5% 390 5% 1K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C660 C661 C662 C663 C664	1-123-612-00 1-163-137-00 1-127-482-11 1-127-502-00 1-123-330-00	CERAMIC CHIP ELECT(SOLID)	10MF		20% 10% 20% 20% 20%	50V 50V 6.3V 25V 10V
R722			1.2K 0.5				<u>IC</u>					
R723 R724	1-216-661-11 1-215-485-00	METAL CHIP METAL	2.7K 0.5 470K 1%	0% 1/16W 1/6W		IC601	8-752-009-90	IC CX20099				
R751 R753		METAL CHIP	15K 5% 39K 5%	1/10W 1/10W			RES	ISTOR				
R761 R763	1-216-057-00 1-216-057-00		2.2K 5% 2.2K 5%	1/10W 1/10W		R600 R601 R602	1-216-025-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	10K	5% 5% 5%	1/10W 1/10W 1/10W	
	VAR	RIABLE RESISTOR	1			R603 R604	1-216-009-00 1-216-059-00	METAL CHIP		5% 5%	1/10W 1/10W	
RV70 RV70 RV70 RV75 RV75	3 1-228-991-00 5 1-228-999-00 1 1-228-995-00	RES, ADJ, CAR RES, ADJ, CAR RES, ADJ, CAR RES, ADJ, CAR RES, ADJ, CAR	RBON 2.2K RBON 470K RBON 22K			R605 R606 R607 R608 R609	1-216-057-00 1-216-045-00 1-216-083-00 1-216-063-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680 27K 3.9K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
****	******			******	******	R610	1-216-059-00	METAL CHIP		5%	1/10W	
	*A-7068-025-A	NR-6 BAORD,	COMPLETE (IC601)		R611 R612 R613	1-216-061-00 1-216-065-00 1-216-072-00	METAL CHIP METAL CHIP METAL CHIP	3.3K 4.7K 9.1K	5% 5% 5%	1/10W 1/10W 1/10W	
	CAP	ACITOR				R614	1-216-073-00	METAL CHIP		5%	1/10W	
C601 C602 C603 C604 C605	1-123-661-00 1-123-306-00 1-123-661-00 1-123-661-00 1-130-490-11	ELECT ELECT ELECT	100MF 47MF 100MF 100MF 0.039MF	20% 20% 20% 20% 5%	6.3V 10V 6.3V 6.3V 50V	R617 R650 R651 R652 R653	1-216-081-00 1-216-025-00 1-216-073-00 1-216-073-00 1-216-009-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C606 C607 C608 C609 C610	1-163-125-00 1-163-088-00 1-130-479-00 1-163-020-00 1-123-612-00		220PF 5PF 0.0047MF	10% 0.25PF 5% 10% 20%	50V	R654 R655 R656 R657 R658	1-216-059-00 1-216-057-00 1-216-045-00 1-216-083-00 1-216-063-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 680 27K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C611 C612 C613 C614 C615	1-163-137-00 1-127-482-11 1-127-502-00 1-123-330-00	CERAMIC CHIP ELECT(SOLID) ELECT(SOLID)	10MF 0.22MF 22MF	10% 20% 20% 20% 10%	50V 6.3V 25V 10V 50V	R659 R660 R661 R662 R667	1-216-061-00 1-216-059-00 1-216-061-00 1-216-065-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP		5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C616 C617 C618 C651	1-123-661-00 1-123-661-00	CERAMIC CHIP ELECT ELECT	100MF 100MF	20% 10% 20% 20%	6.3V 50V 6.3V 6.3V		<u>PIN</u> *1-566-099-11 *****				***** *	*****
C652 C653 C654	1-123-306-00 1-123-661-00 1-123-661-00	ELECT	47MF 100MF 100MF	20% 20% 20%	10V 6.3V 6.3V							

Ref.No Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
	MK-2 BOARD,	COMPLETE				*3-703-353-07	SUPPORT, PC	BOARD		
	*****	*****				CAP	ACITOR			
CAI	ACITOR				0003			10045	00%	C 24
C807 1-130-487-00 C808 1-130-487-00 C809 1-130-467-00 C810 1-130-471-00 C827 1-130-487-00	MYLAR MYLAR FILM	0.022MF 0.022MF 470PF 0.001MF 0.022MF	5% 5% 5% 5%	50V 50V 50V 50V 50V	C003 C004 C005 C007 C008	1-124-468-11 1-163-117-00 1-123-619-00 1-163-093-00 1-124-907-00	CERAMIC CHIP ELECT CERAMIC CHIP	4.7MF	20% 5% 20% 5% 20%	6.3V 50V 50V 50V 50V
C828 1-130-487-00 C829 1-130-467-00 C830 1-130-471-00 C843 1-124-892-11 C850 1-101-005-00	MYLAR MYLAR FILM ELECT	0.022MF 470PF 0.001MF 47MF 0.022MF	5% 5% 5% 20%	50V 50V 50V 10V 50V	C009 C010 C011 C012 C014	1-163-119-00 1-163-117-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	47PF 110PF 120PF 100PF	5% 5% 5% 5%	50V 50V 50V 50V 50V
C852 1-102-973-00	CERAMIC	100PF	5%	507	C015 C016 C017	1-124-247-00	CERAMIC CHIP ELECT CERAMIC CHIP	10MF	5% 20%	50V 25V 50V
<u>co</u>	NECTOR				C026 C027	1-163-123-00	CERAMIC CHIP CERAMIC CHIP	180PF	5% 5%	50V 50V
CN802 *1-564-318-00 IC801 8-759-913-62		D BOARD 10P			C028 C029 C030 C032 C033	1-163-102-00 1-163-075-00 1-124-907-00 1-163-103-00	CERAMIC CHIP	24PF 0.047MF 10MF 27PF	5% 20% 5% 5%	50V 50V 50V 50V 50V
IC821 8-759-913-62 IC851 8-759-206-68	IC IR3NO5 IC TC40103BP				C034 C035 C036 C037	1-163-119-00 1-163-103-00 1-163-077-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	120PF 27PF 0.1MF	5% 5%	50V 50V 50V 50V
L801 1-408-421-00	MICRO INDUCTO	OR 100UH			C038		CERAMIC CHIP		•	507
TR	ANSISTOR				C039		CERAMIC CHIP		1.00	50V
Q851 8-729-178-54	TRANSISTOR 25	SC2785			C040 C041 C042		CERAMIC CHIP		10%	50V 50V 50V
RE	SISTOR				C043	1-124-247-00		10MF	20%	25V
R810 1-249-423-11 R811 1-249-428-11 R812 1-249-436-11 R830 1-249-423-11 R851 1-249-428-11 R851 1-249-435-11 R852 1-249-435-11 R853 1-249-441-11	CARBON CARBON CARBON CARBON CARBON CARBON	3.3K 5% 8.2K 5% 39K 5% 3.3K 5% 8.2K 5% 33K 5% 33K 5% 100K 5%	1/6W 1/6W 1/6W 1/6W 1/6W 1/6W 1/6W		C044 C045 C046 C047 C048		ELECT ELECT CERAMIC CHIP	1MF 4.7MF 330MF	20% 20% 20% 20%	50V 50V 50V 50V 6.3V 50V 50V
	RIABLE RESISTO	D			C051 C053	1-124-908-11		22MF	20% 5%	25V 50V
RV801 1-228-990-00			,		C054	1-124-907-00		10MF	20%	50V
RV821 1-228-990-00	RES, ADJ, ME	TAL GLAZE 1K	(C055 C056	1-163-113-00 1-163-141-00	CERAMIC CHIP CERAMIC CHIP		5% 10%	50V 50V
**************************************	VI-20 BOARD	, COMPLETE ((WG MODE	L)	C057 C058 C060	1-163-113-00 1-163-075-00 1-163-092-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.047MF	5% 0.25PF	50V 50V 50V
*A-7060-792-A	VI-20 BOARD ************** (Including t	, COMPLETE ((AEP MOD ******* ard(ICO1	DEL)	C061 C062 C063 C064 C065	1-163-077-00 1-163-075-00 1-163-075-00 1-124-464-11 1-124-907-00		0.047MF	20% 20%	50V 50V 50V 50V 50V

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C066 C100 C101 C102 C104	1-163-129-00 1-163-101-00 1-163-129-00 1-163-093-00 1-163-105-00	CERAMIC CHIP 330PF CERAMIC CHIP 22PF CERAMIC CHIP 330PF CERAMIC CHIP 10PF CERAMIC CHIP 33PF	5% 5% 5% 5% 5%	50V 50V 50V 50V 50V	C244 C250 C251 C252 C253	1-163-075-00 1-163-101-00 1-163-137-00 1-124-927-11 1-163-075-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 22PF CERAMIC CHIP 680PF ELECT 4.7MF CERAMIC CHIP 0.047MF	5% 5% 20%	50V 50V 50V 50V 50V
C105 C106 C107 C110 C111	1-163-129-00 1-163-111-00 1-124-908-11 1-163-107-00 1-163-107-00	CERAMIC CHIP 330PF CERAMIC CHIP 56PF ELECT 22MF CERAMIC CHIP 39PF CERAMIC CHIP 39PF	5% 5% 20% 5% 5%	50V 50V 25V 50V 50V	C254 C255 C260 C261 C262	1-163-075-00 1-124-907-00 1-163-075-00 1-163-141-00 1-163-141-00	CERAMIC CHIP 0.047MF ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.001MF	20% 10% 10%	50V 50V 50V 50V 50V
C112 C113 C114 C115 C116	1-163-111-00 1-163-097-00 1-163-075-00 1-163-092-00 1-124-908-11	CERAMIC CHIP 56PF CERAMIC CHIP 15PF CERAMIC CHIP 0.047MF CERAMIC CHIP 9PF ELECT 22MF	5% 5% 0.25PF 20%	50V 50V 50V 50V 25V	C263 C264 C265 C266 C267	1-163-117-00 1-163-109-00 1-124-927-11 1-163-075-00 1-163-109-00	CERAMIC CHIP 100PF CERAMIC CHIP 47PF ELECT 4.7MF CERAMIC CHIP 0.047MF CERAMIC CHIP 47PF	5% 5% 20% 5%	50V 50V 50V 50V 50V
C117 C201 C202 C203 C204	1-163-127-00 1-163-141-00 1-163-075-00 1-163-021-00 1-163-101-00	CERAMIC CHIP 270PF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF CERAMIC CHIP 22PF	5% 10% 5%	50V 50V 50V 50V	C268 C301 C302 C303 C304	1-124-462-00 1-163-075-00 1-163-109-00 1-163-017-00 1-163-113-00	ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 47PF CERAMIC CHIP 0.0047M CERAMIC CHIP 68PF	20% 5% 10% 5%	16V 50V 50V 50V 50V
C205 C206 C207 C208 C209	1-163-111-00 1-124-257-00 1-163-121-00 1-123-619-00 1-163-111-00	CERAMIC CHIP 56PF ELECT 2.2MF CERAMIC CHIP 150PF ELECT 4.7MF CERAMIC CHIP 56PF	5% 20% 5% 20% 5%	50V 35V 50V 50V 50V	C305 C306 C307 C308 C309	1-163-129-00 1-163-129-00 1-163-021-00 1-163-141-00 1-163-021-00	CERAMIC CHIP 330PF CERAMIC CHIP 330PF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.01MF	5% 5% 10%	50V 50V 50V 50V 50V
C210 C211 C212 C213 C215	1-163-133-00 1-163-075-00 1-124-904-00 1-124-907-00 1-124-927-11	CERAMIC CHIP 470PF CERAMIC CHIP 0.047MF ELECT 2.2MF ELECT 10MF ELECT 4.7MF	5% 20% 20% 20%	50V 50V 50V 50V 50V	C310 C311 C312 C313 C314	1-163-118-00 1-124-907-00 1-163-075-00 1-163-141-00 1-163-141-00	CERAMIC CHIP 110PF ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.001MF	5% 20% 5% 10%	50V 50V 50V 50V 50V
C216 C217 C218 C219 C220	1-163-101-00 1-163-113-00 1-163-121-00 1-163-101-00 1-124-892-11	CERAMIC CHIP 22PF CERAMIC CHIP 68PF CERAMIC CHIP 150PF CERAMIC CHIP 22PF ELECT 47MF	5% 5% 5% 5% 20%	50V 50V 50V 50V 10V	C315 C316 C317 C318 C319	1-124-904-00 1-163-019-00 1-124-905-11 1-163-141-00 1-163-093-00	CERAMIC CHIP 0.0068MI ELECT 3.3MF CERAMIC CHIP 0.001MF CERAMIC CHIP 10PF	20% 10% 20% 10% 5%	50V 50V 50V 50V 50V
C221 C222 C223 C224 C225	1-163-115-00 1-163-103-00 1-163-115-00 1-163-101-00 1-163-021-00	CERAMIC CHIP 82PF CERAMIC CHIP 27PF CERAMIC CHIP 82PF CERAMIC CHIP 22PF CERAMIC CHIP 0.01MF	5% 5% 5% 5%	50V 50V 50V 50V 50V	C320 C321 C322 C323 C324	1-163-021-00 1-163-145-00 1-163-141-00 1-124-907-00 1-163-077-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.0015MI CERAMIC CHIP 0.001MF ELECT 10MF CERAMIC CHIP 0.1MF	10% 10% 20%	50V 50V 50V 50V
C226 C227 C228 C229 C230	1-163-021-00 1-163-101-00 1-163-111-00 1-124-462-00 1-163-141-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 22PF CERAMIC CHIP 56PF ELECT 10MF CERAMIC CHIP 0.001MF	5% 5% 20% 10%	50V 50V 50V 16V 50V	C325 C326 C327 C328 C329		CERAMIC CHIP 33PF CERAMIC CHIP 100PF CERAMIC CHIP 47PF CERAMIC CHIP 68PF CERAMIC CHIP 0.001MF	5% 5% 5% 5% 10%	50V 50V 50V 50V
C236 C237 C238 C239 C240	1-124-468-11 1-163-075-00	CERAMIC CHIP 0.047MF	20% 20% 10%	16V 50V 6.3V 50V	C330 C331 C332 C414 C415	1-163-111-00 1-163-141-00 1-124-907-00	CERAMIC CHIP 220PF CERAMIC CHIP 56PF CERAMIC CHIP 0.001MF ELECT 10MF 20 CERAMIC CHIP 270PF	5% 5% 10% 50V (50V 50V 50V WG MODEL) 50V
C241 C242 C243	1-163-075-00 1-124-908-11 1-124-908-11		20% 20%	50V 25V 25V	C417 C418 C419	1-130-473-00 1-124-908-11 1-124-927-11	ELECT 22MF 20	% 25V (50V WG MODEL) AEP MODEL)

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Ref.No Part No.	Description	Rema	k Ref.No	Part No.	Description		Remark
C425 1-124-907-00 C426 1-163-021-00 C427 1-163-063-00	CERAMIC CHIP 0.01MF ELECT 10MF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.022MF CERAMIC CHIP 0.047MF	50V 50V 50V 50V 50V	D413 D414 D415 D416 D417	8-719-106-22 8-719-106-22 8-719-106-22	DIODE RD7.5M-B1 DIODE RD7.5M-B1 DIODE RD7.5M-B1 DIODE RD7.5M-B1 DIODE RD7.5M-B1		
C429 1-163-063-00 C430 1-163-021-00 C433 1-124-907-00 C434 1-124-907-00 C437 1-124-907-00	ELECT 10MF	50V 50V 20% 50V 20% 50V 20% 50V	D418 D419	8-719-106-22	DIODE RD7.5M-B1 DIODE RD7.5M-B1 AY LINE		
C438 1-124-908-11 C440 1-124-908-11 C445 1-163-077-00 C446 1-124-892-11 C450 1-124-471-00	ELECT 22MF CERAMIC CHIP 0.1MF ELECT 47MF	20% 25V 20% 25V 50V 20% 10V 20% 6.3V	DL002	<u>IC</u> 8-752-013-00	DELAY LINE, 1H IC CX20130	(13.3MHZ)	
	CERAMIC CHIP 0.01MF CERAMIC CHIP 82PF	20% 10V 50V 5% 50V 20% 25V	IC003	8-752-013-10 8-759-913-64 8-759-927-52 8-759-202-68	IC CX23064 IC BA7036LS		
CN003 *1-564-007-00 CN007 *1-564-006-11	PIN, CONNECTOR 8P		IC010 IC011	8-752-006-10 *A-7068-030-A 1-807-844-11 1-807-846-11	IC CX20061 (WG N CH-44 BOARD, C IC BS6324 IC BS7443	MODEL) OMPLETE	
CN009 *1-564-027-00	PIN, CONNECTOR 2P (AEP MODE PIN, CONNECTOR 3P (WG MODE	DEL) EL)	JR001	<u>Јим</u> 1-216 - 295-00	PER RESISTOR METAL CHIP 0	5%	1/10//
CNO11 *1-564-001-11 CNO12 *1-564-003-00	PIN, CONNECTOR 2P (WG MODE PIN, CONNECTOR 4P (WG MODE PIN, CONNECTOR 4P (WG MODE	FI)	JR002 JR003 JR004	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O METAL CHIP O METAL CHIP O	5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W
JA	<u>CK</u>		JR006	1-216-295-00	METAL CHIP 0	5%	1/10W
CNJ001 1-561-534-82 CNJ002 1-507-945-21 CNJ003 1-507-945-21	JACK, PIN 1P		JR008 JR009	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O METAL CHIP O METAL CHIP O	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W
DI	DDE			1-216-295-00		5%	1/10W
DO05 9 710 101 22	DIODE 1S2835 DIODE 1SS123-T1 DIODE 1S2835 (AEP MODEL) DIODE 1S2837-T1 DIODE 1SS123		JR013 JR014 JR015	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O METAL CHIP O METAL CHIP O	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W
0302 8-719-101-23	DIODE 1523-11 DIODE 152835 (AEP MODEL) DIODE 152837-T1 DIODE 152835 DIODE 152835 DIODE 152837 DIODE 152837 DIODE 155123 DIODE 155123		JR018 JR019 JR020 JR021	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP 0 METAL CHIP 0 METAL CHIP 0	5% 5% 5%	1/10W 1/10W 1/10W 1/10W
D304 8-719-101-23 D305 8-719-100-03 D402 8-719-100-05 D403 8-719-106-08	DIODE 1SS123 DIODE 1S2835 DIODE 1S2837 (WG MODEL)		JR023 JR024 JR025 JR026	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP 0 METAL CHIP 0 METAL CHIP 0 METAL CHIP 0	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D411 8-719-106-22	DIODE RD7.5M-B1 DIODE RD7.5M-B1		JR028 JR029	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
JR031 JR032 JR033 JR034 JR035	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		JR084 JR085 JR086 JR087 JR088	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 55 0 55 0 55 0 55 0 55	% 1/10W % 1/10W % 1/10W	
JR036 JR037 JR038 JR039 JR040	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		JR089 JR090 JR091 JR092 JR093	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 55 0 55 0 55 0 56 0 56	% 1/10W % 1/10W % 1/10W	
JR041 JR042 JR043 JR044 JR045	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		JR094 JR095 JR096 JR097 JR098	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 55 0 55 0 55 0 55 0 55	% 1/10w % 1/10w % 1/10w	
JR046 JR047 JR048 JR049 JR050	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/10W 1/10W 1/10W		JR099 JR100 JR101 JR102 JR103	1-216-295-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 55 0 55 0 55 0 55 0 55	% 1/8W % 1/8W % 1/8W	
JR051 JR052 JR053 JR054 JR055	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		JR104 JR105 JR106 JR107 JR108	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/8W 1/8W 1/8W	
JR056 JR057 JR058 JR059 JR060	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		JR109 JR110 JR111 JR112 JR113	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/8W 1/8W 1/8W	
JR061 JR062 JR063 JR064 JR065	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/10W 1/10W 1/10W		JR114 JR115 JR116 JR117 JR118	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/8W 1/8W 1/8W	
JR066 JR067 JR068 JR069 JR070	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/10W 1/10W 1/10W		JR119 JR120 JR121 JR122 JR123	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/8W 1/8W 1/8W	
JR071 JR072 JR073 JR074 JR075	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	3 1/10W 3 1/10W 4 1/10W		JR127	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W	
JR076 JR077 JR078 JR079 JR080	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59 0 59 0 59	1/10W 1/10W 1/10W		JR130	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W	
JR081 JR082 JR083	1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 59 0 59 0 59	6 1/10W		JR135	1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5%	1/8W	

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Ref.No	Part No.	Description	<u>n</u>			Remark	Ref.No	Part No.	Description		Remark
JR137	1-216-296-00	METAL CHIP	0	5%	1/8W		L106	1-408-414-00	MICRO INDUCTO	R 27UH	
JR138	1-216-296-00	METAL CHIP	_	5%	1/8W		L107	1-408-422-00	MICRO INDUCTO		
JR139	1-216-296-00	METAL CHIP		5%	1/8W		L201	1-408-397-00	MICRO INDUCTO		
JR140	1-216-296-00	METAL CHIP		5%	1/8W		L202	1-408-397-00	MICRO INDUCTO		
JR141	1-216-296-00	METAL CHIP	0	5%	1/8W		L204	1-408-419-00	MICRO INDUCTO	R 68UH	
JR142	1-216-296-00	METAL CHIP	0	5%	1/8W		L205	1-408-419-00	MICRO INDUCTO	R 68UH	
JR143	1-216-296-00	METAL CHIE		5%	1/8W		L206	1-408-417-00	MICRO INDUCTO		
JR144	1-216-296-00	METAL CHIE		5%	1/8W		L207	1-408-420-00	MICRO INDUCTO		
JR145	1-216-296-00	METAL CHIE	0	5%	1/8W		L208	1-408-417-00	MICRO INDUCTO		
JR146	1-216-296-00	METAL CHIP	0	5%	1/8W		L209	1-408-413-00	MICRO INDUCTO	R 22UH	
JR147	1-216-296-00	METAL CHIR	0	5%	1/8W		L212	1-408-413-00	MICRO INDUCTO		
JR148	1-216-296-00	METAL CHIE		5%	1/8W		L213	1-408-408-00	MICRO INDUCTO		
JR149	1-216-296-00	METAL CHIE		5%	1/8W		L220	1-408-411-00	MICRO INDUCTO		
JR150	1-216-296-00	METAL CHIE		5%	1/8W		L221	1-408-427-00	MICRO INDUCTO	R 3300H	
JR151	1-216-296-00	METAL CHI	0	5%	1/8W		L301	1-408-421-00	MICRO INDUCTO	K 1000h	
JR152	1-216-296-00	METAL CHIR		5%	1/8W		L302	1-408-413-00	MICRO INDUCTO		
JR153	1-216-296-00	METAL CHI		5%	1/8W		L303	1-408-425-00	MICRO INDUCTO		
JR154	1-216-296-00	METAL CHI		5%	1/8W		L304	1-408-422-00	MICRO INDUCTO MICRO INDUCTO		
JR155				5%	1/8W		L401 L402	1-410-118-11 1-408-424-00	MICRO INDUCTO		
JR156	1-216-296-00	METAL CHI	P 0	5%	1/8W		1402	1-400-424-00			
JR157	1-216-296-00	METAL CHI	P 0	5%	1/8W		L405	1-408-409-00	MICRO INDUCTO		
JR158	1-216-296-00	METAL CHI		5%	1/8W		L411			R 22UH (WG MODEL)	
JR159				5%	1/8W		L412	1-408-421-00	MICRO INDUCTO	IK 1000H	
JR160				5%	1/8W		1	VAC	TARTE COTI		
JR161	1-216-296-00	METAL CHI	P 0	5%	1/8W				RIABIE COIL		
JR162	1-216-296-00			5%	1/8W		LV201	1-408-512-00	COIL (VARIABL	E) 10UH	
JR163				5% 5%	1/8W 1/8W			IC	LINK		
JR164 JR165	1-216-296-00 1-216-296-00			5%	1/8W			10	E THE		
JR166				5%	1/8W		PS001/	<u>1-532-679-00</u>	LINK, IC (ICP	P-N15)	
JR167	1-216-296-00	METAL CHI	P 0	5%	1/8W			TRA	ANSISTOR		
JR168				5%	1/8W						
JR169			P 0	5%	1/8W		Q002		TRANSISTOR DT		
JR170	1-216-296-00	METAL CHI	P 0	5%	1/8W		Q004		TRANSISTOR DT		
JR171	1-216-296-00	METAL CHI	P 0	5%	1/8W		0006		TRANSISTOR 25		
				Fα	1 (0)		0009		TRANSISTOR 25		
JR172				5%	1/8W		Q010	8-729-312-22	TRANSISTOR 25	MIIZZ	
JR173				5% 5%	1/8W 1/8W		0011	8-729-312-22	TRANSISTOR 25	A1122	
JR174	1-216-296-00	METAL CHI	r 0	3.0	1/01		0013	8-729-901-00			
	co	IL					0014	8-729-117-54		SA1175	
		_					Q015	8-729-901-06			
L002	1-408-416-00	MICRO INE	UCTOR 3	9UH			Q018	8-729-312-22	TRANSISTOR 25	SA1122	
L003	1-408-421-00						2012	0 700 100 70	TRANSTETOR OF	24012	
L004	1-408-427-00						Q019		TRANSISTOR 25	SAB12 SC1622 17	
L005	1-408-422-00						0020	8-729-100-67 8-729-100-67			
L009	1-408-418-00) MICRO IND	JUCTUR 5	OUH			Q023 Q024	8-729-100-67			
L010	1-408-420-00	MICRO INC	NICTOR 8	2UH			Q025	8-729-901-06	TRANSISTOR D		
L011	1-408-418-00						,				
L012	1-408-423-00						Q026	8-729-901-06			
L013	1-408-421-00						Q027	8-729-100-67			
L100	1-408-409-00		OUCTOR 1	OUH			0100	8-729-100-67			
							0101	8-729-901-06			
L101	1-408-428-00						Q102	8-729-901-06	TRANSISTOR D	ICI44EK	
L102	1-408-409-00		DUCTOR 1	50H			0103	8-729-100-67	TRANSISTOR 25	SC1623-L7	
L103 L105	1-408-423-00		DUCTOR A	. 2UH			4.20				
2103	1-400-400-00	, HIGHO IN					I				

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description				Domank
Q104 Q106 Q107 Q110 Q113	8-729-100-67 8-729-901-06 8-729-100-67 8-729-312-22 8-729-100-67	TRANSISTOR 2SC1623-L TRANSISTOR DTA144EK TRANSISTOR 2SC1623-L	7	R023 R024 R025 R026 R027	1-216-043-00 1-216-049-00 1-216-057-00 1-216-059-00 1-216-057-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560 1K 2.2K 2.7K 2.2K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	Remark
Q201 Q202 Q203 Q204 Q205	8-729-901-06 8-729-901-00 8-729-901-00 8-729-901-06 8-729-901-06	TRANSISTOR DTC144EK TRANSISTOR DTC124EK TRANSISTOR DTC124EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK		R028 R029 R030 R044 R045	1-216-049-00 1-216-073-00 1-216-049-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 10K 1K 4.7K 4.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q206 Q207 Q208 Q209 Q211	8-729-901-06 8-729-100-67 8-729-100-67 8-729-100-67 8-729-901-06	TRANSISTOR DTC144EK TRANSISTOR 2SC1623-L TRANSISTOR 2SC1623-L TRANSISTOR 2SC1623-L TRANSISTOR DTC144EK	7	R046 R047 R048 R049 R050	1-216-039-00 1-216-101-00 1-216-099-00 1-216-113-00 1-216-075-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	390 150K 120K 470K 12K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q215 Q216 Q217 Q218 Q219	8-729-312-22 8-729-100-67 8-729-100-67 8-729-312-22 8-729-901-04	TRANSISTOR 2SA1122 TRANSISTOR 2SC1623-L TRANSISTOR 2SC1623-L TRANSISTOR 2SA1122 TRANSISTOR DTA114EK		R051 R052 R053 R054 R055	1-216-081-00 1-216-077-00 1-216-063-00 1-216-033-00 1-216-109-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 15K 3.9K 220 330K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q220 Q221 Q222 Q301 Q302	8-729-100-67 8-729-312-22 8-729-100-67 8-729-100-67	TRANSISTOR 2SC1623-L TRANSISTOR 2SC1623-L	7 7	R056 R057 R058 R059 R060	1-216-049-00 1-216-081-00 1-216-081-00 1-216-089-00 1-216-091-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 22K 22K 47K 56K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q304 Q403 Q404 Q405 Q406	8-729-901-00 8-729-901-06 8-729-901-06 8-729-901-06 8-729-100-67	TRANSISTOR DTC124EK TRANSISTOR DTA144EK TRANSISTOR DTA144EK TRANSISTOR DTC144EK TRANSISTOR 2SC1623-L		R061 R062 R063 R064 R066	1-216-059-00 1-216-083-00 1-216-093-00 1-249-417-11 1-216-043-00	METAL CHIP METAL CHIP METAL CHIP CARBON METAL CHIP	2.7K 27K 68K 1K 560	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/10W	
Q407 Q408 Q409 Q410 Q413	8-729-100-67 8-729-177-33 8-729-901-06 8-729-901-06 8-729-100-67	TRANSISTOR 2SC1623-L TRANSISTOR 2SD773-4 TRANSISTOR DTC144EK TRANSISTOR DTA144EK TRANSISTOR 2SC1623-L		R067 R068 R069 R070 R071	1-216-037-00 1-216-045-00 1-216-035-00 1-216-047-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	330 680 270 820 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q420 Q421 Q423		TRANSISTOR 2SA1122 TRANSISTOR 2SC2785 TRANSISTOR 2SD773-4		R072 R073 R074 R075 R076	1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 4.7K 4.7K 820 47K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R008 R009 R010 R012 R013	1-216-041-00 1-216-037-00 1-216-041-00 1-216-051-00 1-216-075-00	METAL CHIP 330 METAL CHIP 470 METAL CHIP 1.2K	5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W	R078 R079 R080 R081 R082	1-216-081-00 1-216-041-00 1-216-051-00 1-216-081-00 1-216-081-00	METAL CHIP	22K 470 1.2K 22K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R014 R016 R017 R018 R019	1-216-081-00 1-216-057-00 1-216-055-00 1-216-059-00 1-216-057-00	METAL CHIP 2.2K METAL CHIP 1.8K METAL CHIP 2.7K	5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W	R083 R084 R087 R100 R101	1-216-081-00 1-216-081-00 1-216-025-00 1-216-049-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 22K 100 1K 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R020 R021 R022	1-216-039-00 1-216-043-00 1-216-073-00	METAL CHIP 560	5% 1/10W 5% 1/10W 5% 1/10W	R102 R103 R109	1-216-039-00 1-216-057-00 1-216-091-00	METAL CHIP METAL CHIP METAL CHIP	390 2.2K 56K	5% 5% 5%	1/L(W 1/L(W 1/L(W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R110 R111 R112 R113 R114	1-216-065-00 1-216-059-00 1-216-055-00 1-216-031-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 2.7K 1.8K 180 470	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R224 R225 R226 R227 R228	1-216-081-00 1-216-065-00 1-216-057-00 1-216-045-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 4.7K 2.2K 680 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R115 R116 R117 R118 R119	1-216-053-00 1-216-041-00 1-216-049-00 1-216-049-00 1-216-019-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.5K 470 1K 1K 56	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R229 R230 R231 R232 R233	1-216-045-00 1-216-051-00 1-216-045-00 1-216-053-00 1-216-045-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680 1.2K 680 1.5K 680	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R120 R121 R128 R129 R131	1-216-081-00 1-216-081-00 1-216-295-00 1-216-049-00 1-216-057-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 22K 0 1K 2.2K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R234 R236 R237 R238 R239	1-216-049-00 1-216-049-00 1-216-041-00 1-216-049-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 1K 470 1K 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R132 R133 R134 R136 R137	1-216-057-00 1-216-033-00 1-216-033-00 1-216-041-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 220 220 470 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R241 R246 R247 R248 R249	1-216-035-00 1-216-079-00 1-216-075-00 1-216-051-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	270 18K 12K 1.2K 22K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R138 R139 R140 R141 R142	1-216-041-00 1-216-051-00 1-216-041-00 1-216-081-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	470 1.2K 470 22K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R250 R251 R252 R253 R254	1-216-081-00 1-216-039-00 1-216-027-00 1-216-035-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 390 120 270 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R144 R145 R146 R148 R149	1-216-023-00 1-216-029-00 1-216-296-00 1-216-047-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	82 150 0 820 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/8W 1/10W 1/10W		R255 R256 R257 R258 R265	1-216-083-00 1-216-089-00 1-216-077-00 1-216-073-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	27K 47K 15K 10K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R175 R201 R202 R203 R204	1-216-295-00 1-216-009-00 1-216-025-00 1-216-027-00 1-216-081-00	METAL CHIP	0 22 100 120 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R266 R267 R268 R269 R270	1-216-081-00 1-216-047-00 1-216-057-00 1-216-045-00 1-216-031-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 820 2.2K 680 180	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R205 R206 R207 R208 R209	1-216-081-00 1-216-081-00 1-216-081-00 1-216-075-00 1-216-121-00	METAL CHIP METAL CHIP METAL CHIP	22K 22K 22K 12K 1M	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R271 R272 R273 R274 R275	1-216-049-00 1-216-079-00 1-216-075-00 1-216-035-00 1-216-017-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 18K 12K 270 47	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R210 R211 R212 R213 R214	1-216-117-00 1-216-087-00 1-216-073-00 1-216-025-00 1-216-039-00	METAL CHIP METAL CHIP	680K 39K 10K 100 390	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R276 R277 R278 R279 R280	1-216-063-00 1-216-057-00 1-216-059-00 1-216-065-00 1-216-065-00	METAL CHIP	3.9K 2.2K 2.7K 4.7K 4.7K	5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R215 R216 R217 R218 R219	1-216-057-00 1-216-085-00 1-216-081-00 1-216-049-00 1-216-051-00	METAL CHIP METAL CHIP METAL CHIP	2.2K 33K 22K 1K 1.2K	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R281 R282 R285 R286 R287	1-216-044-00 1-216-033-00 1-216-081-00 1-216-073-00 1-216-035-00	METAL CHIP	620 220 22K 10K 270	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R220 R221 R222	1-216-065-00 1-216-045-00 1-216-065-00	METAL CHIP	4.7K 680 4.7K	5%	1/10W 1/10W 1/10W		R288 R289 R290	1-216-053-00 1-216-025-00 1-216-083-00		1.5K 100 27K	5% 5% 5%	1/10W 1/10W 1/10W	

Ref.No Par	rt No.	Description			Remark	Ref.No	Part No.	Description		Remark
R292 1-2 R293 1-2 R294 1-2	216-081-00 216-089-00 216-111-00 216-071-00 216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 5% 47K 5% 390K 5% 8.2K 5% 0 5%	1/10W 1/10W 1/10W		R414 R415 R416 R417 R425	1-216-045-00 1-216-065-00 1-216-061-00 1-216-065-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680 5% 4.7K 5% 3.3K 5% 4.7K 5% 1K 5%	1/10W 1/10W 1/10W
R299 1-2 R301 1-2 R302 1-2	216-073-00 216-121-00 216-049-00 216-081-00 216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1 OK 5% 1 M 5% 1 K 5% 2 2 K 5% 2 2 K 5%	1/10W 1/10W 1/10W		R427 R428 R429 R430 R431	1-216-047-00 1-216-295-00 1-216-041-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	820 5% 0 5% 470 5% 10K 5% 10K 5%	1/10W 1/10W 1/10W
R305 1-2 R306 1-2 R307 1-2	216-057-00 216-043-00 216-065-00 216-049-00 216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 5% 560 5% 4.7K 5% 1K 5% 1K 5%	1/10W 1/10W 1/10W		R432 R433 R434 R435 R436	1-216-029-00 1-216-049-00 1-216-081-00 1-216-081-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150 5% 1K 5% 22K 5% 22K 5% 1K 5%	
R311 1-2 R312 1-2 R313 1-2	216-081-00 216-081-00 216-059-00 216-049-00 216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 5% 22K 5% 2.7K 5% 1K 5% 1K 5%	1/10W 1/10W 1/10W		R437 R440 R441 R442 R443	1-216-022-00 1-216-081-00 1-216-069-00 1-216-089-00 1-216-033-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	75 5% 22K 5% 6.8K 5% 47K 5% 220 5%	1/10W 1/10W
R319 1-2 R320 1-2 R321 1-2	216-065-00 216-041-00 216-081-00 216-089-00 216-043-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 5% 470 5% 22K 5% 47K 5% 560 5%	1/10W 1/10W 1/10W		R444 R444 R445 R446 R447	1-216-047-00 1-216-048-00 1-216-073-00 1-216-081-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	820 5% 910 5% 10K 5% 22K 5% 22K 5%	1/10W (AEP MODEL) 1/10W (WG MODEL) 1/10W 1/10W 1/10W
R324 1-2 R325 1-2 R326 1-2	216-093-00 216-089-00 216-059-00 216-077-00 216-095-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	68K 5% 47K 5% 2.7K 5% 15K 5% 82K 5%	1/10W 1/10W 1/10W		R452 R454 R456 R457 R458	1-216-045-00 1-216-049-00 1-216-049-00 1-216-045-00 1-216-025-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680 5% 1K 5% 1K 5% 680 5% 100 5%	1/10W (AEP MODEL) 1/10W 1/10W 1/10W 1/10W (WG MODEL)
R329 1-2 R330 1-2 R331 1-2	216-097-00 216-099-00 216-071-00 216-057-00 216-053-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 5% 120K 5% 8.2K 5% 2.2K 5% 1.5K 5%	1/10W 1/10W 1/10W		R459 R460 R470 R471 R472	1-216-049-00 1-216-051-00 1-249-408-11 1-216-021-00 1-216-030-00	METAL CHIP METAL CHIP CARBON METAL CHIP METAL CHIP	1K 5% 1.2K 5% 180 5% 68 5% 160 5%	1/10W 1/10W 1/6W 1/10W 1/10W
R334 1-2 R335 1-2 R336 1-2	216-053-00 216-053-00 216-053-00 216-053-00 216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.5K 5% 1.5K 5% 1.5K 5% 1.5K 5% 4.7K 5%	1/10W 1/10W 1/10W		R473 R474 R480 R481 R482	1-216-051-00 1-216-049-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.2K 5% 1K 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W (AEP MODEL) 1/10W (AEP MODEL) 1/10W (WG MODEL)
R339 1-2 R340 1-2 R341 1-2		METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 5% 3.9K 5% 10K 5% 2.7K 5% 1M 5%	1/10W 1/10W 1/10W		R482 R483 R484 R485 R486	1-216-015-00 1-216-296-00 1-216-064-00 1-216-048-00 1-216-035-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	39 5% 0 5% 4.3K 5% 910 5% 270 5%	1/10W (AEP MODEL) 1/8W 1/10W 1/10W 1/10W
R344 1-2 R345 1-2 R346 1-2 R407 1-2	216-039-00 216-115-00 216-073-00 216-049-00 216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	390 5% 560K 5% 10K 5% 1K 5% 1K 5%	1/10W 1/10W 1/10W			1-216-296-00 <u>VAR</u> 1-228-989-00 1-228-989-00	METAL CHIP HABLE RESISTOR RES, ADJ, CAR RES, ADJ, CAR	BON 470	1/8W
R408 1-2	216-022-00 216-057-00 216-045-00	METAL CHIP METAL CHIP METAL CHIP	75 5% 39 5% 680 5%	1/10W (WG 1/10W (AE 1/10W		RV005 RV006	1-228-994-00 1-228-994-00 1-228-994-00	RES, ADJ, CAR RES, ADJ, CAR RES, ADJ, CAR	BON 10K BON 10K	

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Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description			Remark
RV008 1-228-994-00 RV009 1-228-994-00 RV010 1-228-993-00 RV011 1-228-994-00 RV012 1-228-994-00	RES, ADJ, CARBON 10K RES, ADJ, CARBON 10K RES, ADJ, CARBON 4.7K RES, ADJ, CARBON 10K RES, ADJ, CARBON 10K			C028 C029 C030 C031 C032	1-124-462-00 1-163-021-00 1-163-088-00 1-163-021-00 1-163-129-00	ELECT CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	5PF 0.01MF	20% 0.25PF 5%	16V 50V 50V 50V 50V
	RES, ADJ, CARBON 220K RES, ADJ, CARBON 47K			C033 C034 C035 C036	1-163-097-00 1-163-123-00 1-163-129-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	15PF 180PF 330PF	0.25PF 5% 5% 5%	50V 50V 50V 50V
T001 1-235-437-11 T004 1-409-396-11 T005 1-409-397-11 T006 1-235-632-11	REC C TRAP TRAP BPF			C037 C038 C039 C040	1-124-249-00 1-124-252-00		0.1MF 0.33MF	5% 20% 20%	50V 50V 50V 50V
T007 1-235-633-11					TRI	MMER			
TH001 1-800-200-00	THERMISTOR S-3K			CV001	1-141-227-00	CAP, CERAMIC	TRIMMER		
	STAL				<u>1C</u>				
	VIBRATOR, CRYSTAL				8-752-003-20 8-752-202-10				
*******	*******	*****	*****		COI	<u>L</u>			
	CH-44 BOARD, COMPLETE ***********************************			L001 L002 L003 L004	1-407-172-XX 1-407-168-XX	MICRO INDUCTO MICRO INDUCTO MICRO INDUCTO MICRO INDUCTO	R 180UH R 82UH		
	CERAMIC CHIP 10PF	5%	50 V		TRA	NSISTOR			
C003 1-163-108-00 C004 1-163-129-00	CERAMIC CHIP 0.001MF CERAMIC CHIP 43PF CERAMIC CHIP 330PF CERAMIC CHIP 330PF	10% 5% 5% 5%	50V 50V 50V	Q001		TRANSISTOR 2S	C3326N		
C006 1-163-033-00 C007 1-163-063-00 C008 1-131-358-41 C009 1-124-245-00 C011 1-163-021-00	CERAMIC CHIP 0.022MF CERAMIC CHIP 0.022MF TANTALUM 6.8MF ELECT 4.7MF CERAMIC CHIP 0.01MF	10% 10% 20%	50V 50V 25V 35V 50V	R002 R003 R004 R005 R007	1-216-295-00 1-216-073-00 1-216-057-00 1-216-065-00 1-216-053-00	METAL CHIP	0 5% 10K 5% 2.2K 5% 4.7K 5% 1.5K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C013 1-163-075-00 C014 1-124-462-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.047MF ELECT 10MF CERAMIC CHIP 150PF CERAMIC CHIP 0.01MF	20% 5%	50V 50V 16V 50V 50V	R008 R009 R010 R011 R012	1-216-065-00 1-216-025-00 1-216-081-00 1-216-097-00 1-216-069-00	METAL CHIP	4.7K 5% 100 5% 22K 5% 100K 5% 6.8K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C017 1-124-257-00 C018 1-124-251-00 C019 1-163-063-00 C020 1-163-076-00 C021 1-124-257-00		20% 20% 20%	50V 50V 50V 50V 50V	R013 R014 R015 R016 R017	1-216-057-00 1-216-049-00 1-216-081-00 1-216-081-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 5% 1K 5% 22K 5% 22K 5% 1K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C022 1-124-257-00 C023 1-163-141-00 C024 1-163-141-00 C025 1-163-075-00 C026 1-163-117-00	CERAMIC CHIP 0.001MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.047MF CERAMIC CHIP 100PF	20% 10% 5%	50V 50V 50V 50V 50V	R018 R019 R020 R021 R022	1-216-049-00 1-216-077-00 1-216-037-00 1-216-077-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 5% 15K 5% 330 5% 15K 5% 22K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
CO27 1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	R023	1-216-065-00	METAL CHIP	4.7K 5%	1/ 1 0W	

CH-44 IC BS6324 IC BS7443

Ref.No Part No.	Description		Remark	Ref.No	Part No.	<u>Description</u>			Remark
R024 1-216-025-00 R025 1-216-057-00 R026 1-216-073-00 R029 1-216-103-00 R030 1-216-065-00	METAL CHIP 100 5% METAL CHIP 2.2K 5% METAL CHIP 10K 5% METAL CHIP 180K 5% METAL CHIP 4.7K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		J001 J002	1-564-549-11	NECTOR PIN, BOARD TO BO PIN, BOARD TO BO			
VAI	RIABLE RESISTOR				<u>C01</u>	L			
RV001 1-230-524-11	RES, ADJ, SOLID 22K RES, ADJ, SOLID 10K			L001 L002		MICRO INDUCTOR :			
	ANSFORMER				TRA	NSISTOR			
				Q001		TRANSISTOR 2SC1			
T001 1-409-394-11	TRAP, CHROMA EMPHASIS			Q002 Q003	8-729-100-66 8-729-100-66	TRANSISTOR 2SC16 TRANSISTOR 2SC16			
JA	<u>CK</u>			0004		TRANSISTOR 2SC10 TRANSISTOR 2SC10			
	PIN, BOARD TO BOARD, 19P PIN, BOARD TO BOARD, 18P			4003		ISTOR 2501	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
<u>CR'</u>	/STAL			R001	1-216-057-00		2K 5%	1/10W	
X001 1-527-345-00	CRYSTAL, OSC (4.43MHz)			R002 R003	1-216-049-00 1-216-041-00	METAL CHIP 11 METAL CHIP 4:	(5% 70 5%	1/10W 1/10W	
*********	*******	*****	*****	R004 R005	1-216-033-00 1-216-047-00		20 5% 20 5%	1/10W 1/10W	
ICO11 1-807-844-11	IC RS6324			R006	1-216-045-00		30 5%	1/10W	
10011 1-00/-044-11	*****			R008	1-216-059-00	METAL CHIP 2	.7K 5%	1/10W	
CA	PACITOR			R009 R010 R011	1-216-035-00 1-216-035-00 1-216-041-00	METAL CHIP 2	70 5% 70 5% 70 5%	1/10W 1/10W 1/10W	
C003 1-163-021-00 C004 1-163-021-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF	20%	16V 50V 50V 50V 50V	R012 R013 R014 R016 R017	1-216-077-00 1-216-073-00 1-216-043-00 1-216-075-00 1-216-073-00	METAL CHIP 10 METAL CHIP 50 METAL CHIP 11	5K 5% 5K 5% 50 5% 2K 5% 5K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C006 1-163-021-00 C007 1-163-035-00 C008 1-163-141-00 C009 1-163-021-00 C010 1-163-021-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 1000PF CERAMIC CHIP 0.01MF	5%	50V 50V 50V 50V 50V	R018 R019 R021 R022 R023	1-216-033-00 1-216-021-00 1-216-043-00 1-216-045-00 1-216-071-00	METAL CHIP 22 METAL CHIP 68 METAL CHIP 56 METAL CHIP 68	20 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C011 1-163-021-00 C012 1-163-033-00 C013 1-163-095-00 C014 1-163-021-00 C015 1-163-021-00	CERAMIC CHIP 0.022MF CERAMIC CHIP 12PF CERAMIC CHIP 0.01MF	5%	50V 50V 50V 50V 50V	R024 R025 R026 R027	1-216-039-00 1-216-079-00 1-216-079-00 1-216-049-00		90 5% BK 5% BK 5%	1/10W 1/10W 1/10W 1/10W	
	CERAMIC CHIP 0.01MF		50 V	*****	*****	*****	******	*****	*****
C018 1-124-462-00 C019 1-163-035-00	ELECT 10MF CERAMIC CHIP 0.047MF	20%	16V 50V	IC012	1-807-846-11	IC BS7443			
DI	ODE					*****			
D001 8-719-911-19	DIODE 1SS119				CAP	ACITOR			
	DIODE 1SS119			C001		CERAMIC CHIP 130		5%	50V
<u>TR</u>	ANSISTOR			C002 C003	1-163-035-00	CERAMIC CHIP 0.0	47MF		50V 50V
DT001 8-729-901-01	TRANSISTOR DTC144EK			C004 C005		CERAMIC CHIP 0.0 CERAMIC CHIP 47N		20%	50V 16V
				C006	1-163-035-00	CERAMIC CHIP 0.0)47MF		5 0 V

IC BS7443 FT-13

Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description			Remark
C007 C008 C009 C010 C011	1-163-035-00 1-163-120-00 1-163-035-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.047N 130PF 0.047N	1F 1F	5% 5%	50V 50V 50V 50V 50V	R016 R017 R018 R019 R020	1-216-061-00 1-216-045-00 1-216-033-00 1-216-035-00 1-216-053-00	METAL CHIP METAL CHIP METAL CHIP	3.3K 680 220 270 1.5K	5% 1, 5% 1, 5% 1,	/10W /10W /10W /10W /10W
C012 C013 C014	1-124-255-00	CERAMIC CHIP	0.047	1F	5% 20%	50V 50V 50V	R021 R022 R023 R024	1-216-073-00 1-216-045-00 1-216-045-00 1-216-065-00	METAL CHIP	10K 680 680 4.7K	5% 1/ 5% 1/	/10W /10W /10W /10W
	DIO	DDE					R025	1-216-065-00	METAL CHIP	4.7K		10W
D001 D002 D003 D004	8-719-911-19	DIODE 1SS119 DIODE 1SS119 DIODE 1SS119 DIODE 1SS119					R026 R027 R028	1-216-065-00 1-216-073-00 1-216-295-00		4.7K 10K 0	5% 1/ 5% 1/	10W 10W 10W
	TRA	NSISTOR					*****	******	*********	*****	******	******
DT002	8-729-901-04 8-729-901-04	TRANSISTOR D						*A-7060-470-A	FT-13 BOARD,	, COMPLI	TE (WG M	ODEL) ****
DT003 DT004 DT005	8-729-901-04 8-729-901-04 8-729-901-04	TRANSISTOR D TRANSISTOR D TRANSISTOR D	TA114EK TA114EK					*A-7060-477 - A	FT-13 BOARD,	COMPLE	TE (AEP	MODEL) *****
DT006	8-729-901-04	TRANSISTOR D	TA114EK					*3-689-521-01 3-691-611-11	KNOB (S), CON	ITROL		
	<u>IC</u>						'	*3-697-607-11 *3-716-870-01	HOLDER (SU), HOLDER (LEFT)	LED . INDIC	ATION TU	BE
IC001	8-759-925-60	IC BA401						*3-716-871-01	HOLDER(RIGHT)	, INDIC	ATION TU	BE
	CON	NECTOR						CAP	ACITOR			
J001 J002	1-506-592-11	PIN, BOARD TO	O BOARD O BOARD	4P 4P			C003 C004 C005 C006	1-163-093-00 1-163-117-00 1-163-117-00 1-163-021-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	100PF 100PF	5% 5% 5%	50V 50V 50V 50V
	IRA	NSISTOR					C009	1-163-021-00	CERAMIC CHIP	0.01MF		50V
Q001 Q002 Q003 Q004	8-729-100-66 8-729-100-66 8-729-100-66 8-729-100-66	TRANSISTOR 25 TRANSISTOR 25 TRANSISTOR 25 TRANSISTOR 25	SC1623 SC1623				C010 C011 C012 C013	1-163-105-00 1-163-021-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	33PF 0.01MF	20% 5% 5%	50V 50V 50V 50V
	RES	ISTOR					C014	1-163-021-00	CERAMIC CHIP	0.01MF		50V
R001 R002 R003 R004 R005	1-216-067-00 1-216-063-00 1-216-041-00 1-216-037-00 1-216-039-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	5.6K 3.9K 470 330 390	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C015 C016 C017 C018 C019	1-124-255-00 1-124-462-00 1-163-021-00 1-163-021-00 1-124-462-00	ELECT CERAMIC CHIP (CERAMIC CHIP (20% 20% 20%	50V 16V 50V 50V 16V
R006							C020	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V
R007 R008	1-216-049-00 1-216-049-00 1-216-031-00	METAL CHIP METAL CHIP	1K 1K 180	5% 5% 5%	1/10W 1/10W 1/10W			TRI	MER			
RO09 RO10	1-216-057-00 1-216-063-00	METAL CHIP	2.2K	5%	1/10W		CV001	1-141-294-11	CAP, TRIMMER			
R011 R012 R013 R014 R015	1-216-057-00 1-216-051-00 1-216-049-00 1-216-057-00 1-216-069-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 2.2K 1.2K 1K 2.2K 6.8K	5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		D002 D003	8-719-801-52	DIODE 1SS190 DIODE 1SS190 DIODE 1SS190			
	_ 220 005-00	THE PROPERTY.	U.OK	3.0	1/10W		D004 D005	8-719-801-52 8-719-801-52	DIODE 155190 DIODE 155190			

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description		Remark
D006 D007 D008 D009 D010	8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52	DIODE 1SS190		R008 R009 R010 R011 R012	1-216-081-00 1-216-093-00 1-216-073-00 1-216-073-00 1-216-085-00	METAL CHIP METAL CHIP METAL CHIP	22K 5% 68K 5% 10K 5% 10K 5% 33K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D011 D012 D013 D024 D025	8-719-801-52 8-719-801-52 8-719-801-52 8-719-106-43 8-719-801-52	DIODE 1SS190 DIODE 1SS190		R013 R014 R015 R016 R017	1-216-081-00 1-216-097-00 1-216-097-00 1-216-097-00 1-216-073-00	METAL CHIP	22K 5% 100K 5% 100K 5% 100K 5% 10K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D026 D028 D029 D030 D031	8-719-801-52 8-719-106-22 8-719-106-22 8-719-106-22 8-719-301-49	DIODE RD7.5M DIODE RD7.5M DIODE RD7.5M		R018 R019 R020 R021 R022		METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	470K 5% 470K 5% 470K 5% 6.8K 5% 10K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D032 D033 D034 D035 D036				R023 R024 R025 R026 R028	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 5% 10K 5% 10K 5% 10K 5% 10K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D037 D038 D039 D040 D041	8-719-812-31 8-719-812-31 8-719-812-31 8-719-301-49 8-719-301-49	DIODE TLR123 DIODE SEL2810A		R029 R031 R033 R036 R037	1-216-065-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5%	1/10W 1/10W (AEP MODEL) 1/10W 1/10W (AEP MODEL) 1/10W (AEP MODEL)
D042 D043 D044 D045	8-719-812-32 8-719-812-33 8-719-812-31 8-719-301-49	DIODE TLG123A		R038 R041 R042 R043 R044	1-216-295-00 1-216-097-00 1-216-097-00 1-216-097-00 1-216-097-00	METAL CHIP	0 5% 100K 5% 100K 5% 100K 5% 100K 5%	1/10W (AEP MODEL) 1/10W 1/10W 1/10W 1/10W
	IND	DICATOR TUBE		R045	1-216-097-00	METAL CHIP	100K 5%	1/10W
FL001	1-519-410-11	INDICATOR TUBE, FLUORESCENT		R051 R052	1-216-041-00 1-216-041-00	METAL CHIP	470 5% 470 5%	1/10W 1/10W
	īc			R053 R055	1-216-041-00 1-216-041-00	METAL CHIP METAL CHIP	470 5% 470 5%	1/10W 1/10W
	8-759-111-98 8-752-800-70 8-759-604-09 8-759-201-61 8-759-111-66			R056 R057 R058 R059 R060	1-216-041-00 1-216-041-00 1-216-041-00 1-216-041-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP	470 5% 470 5% 470 5% 470 5% 470 5%	1/10W 1/10W 1/10W 1/10W 1/10W
10006	8-759-937-21	IC CXD1078M				RIABLE RESISTOR		2, 10.11
	TRA	ANSISTOR		PV001		RES, VAR, CAR	-	
Q001	8-729-162-44	TRANSISTOR 2SB624-BV4		KYOOI		TCH	NDON IN	
	RES	SISTOR		011004			(110 11005)	,
R001 R002 R003 R004 R005	1-216-073-00 1-216-073-00 1-216-073-00 1-216-099-00 1-216-105-00	METAL CHIP 10K 5% 1/10W METAL CHIP 10K 5% 1/10W		SW001 SW002 SW003 SW004 SW005	1-570-865-11 1-570-854-11 1-570-854-11 1-554-174-42 1-554-174-42	SWITCH, SLIDE SWITCH, SLIDE SWITCH, KEY B SWITCH, KEY B	BOARD BOARD	1
R006 R007	1-216-073-00 1-216-081-00			SW006 SW007 SW008	1-554-174-42 1-554-174-42 1-554-174-42	SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B	OARD	

FT-13 TU-83

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
SW010 SW011 SW012	1-554-174-42 1-554-174-42 1-554-174-42 1-554-174-42 1-554-174-42	SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B	OARD OARD OARD			C024 C025 C026 C027 C028	1-163-021-00 1-123-356-00 1-163-021-00 1-123-332-00 1-123-379-00	CERAMIC CHIP ELECT CERAMIC CHIP ELECT ELECT	10MF	20% 20% 20%	50V 16V
SW014 SW015 SW016 SW017 SW018	1-554-174-42 1-554-174-42	SWITCH, KEY B	OARD OARD OARD			C029 C030 C031 C032 C033	1-106-184-00 1-106-184-00 1-163-103-00 1-123-380-00 1-136-169-00	MYLAR MYLAR CERAMIC CHIP ELECT FILM	1MF	5% 5% 20%	50V 50V 50V 50V (AEP MODEL)
SW019 SW020 SW021 SW022 SW023	1-554-174-42 1-554-088-00 1-554-174-42		OARD OARD OARD			C034 C035 C036 C037 C038	1-123-380-00 1-106-367-00 1-103-741-00 1-136-169-00 1-163-109-00	MYLAR POLYSTYRENE FILM	0.01MF 0.0047MF 0.22MF	10% 100 5% 50V 5% 50V	(AEP MODEL) (AEP MODEL) (AEP MODEL) (AEP MODEL) (AEP MODEL)
SW024 SW025	1-554-174-42 1-554-174-42	SWITCH, KEY B				C039 C040 C041	1-163-125-00 1-123-356-00 1-163-021-00	CERAMIC CHIP ELECT CERAMIC CHIP	10MF		(AEP MODEL) (AEP MODEL) 50V
	CRY	STAL					CON	NECTOR			
X001 X002 X003	1-567-714-11	VIBRATOR, CRY OSCILLATOR, C OSCILLATOR, C	ERAMIC (700	KHz)		CJ001 CJ002	1-566-285-11 1-566-287-11	CONNECTOR, B	OARD TO B	OARD 6P OARD 1C)P
*****	*****	*****	*****	*****	*****		DIO	DE			
	*A-7060-471-A	TU-83 BOARD,	, COMPLETE (WG MODE	L) **	D001 D002	8-719-101-23 8-719-100-03	DIODE 1SS123 DIODE 1S2835			
	*A-7060-607-A						IC				
	CAF	ACITOR	*****	******	***	10002	8-759-602-16 8-759-007-54 8-759-907-45	IC TDA4940	AEP MODEL)	
C001 C002	1-130-493-00 1-130-493-00		0.068MF 0.068MF	5% 5%	50V 50V		IF				
C003 C004 C005	1-163-105-00 1-123-318-00	CERAMIC CHIP	33PF 33MF	5% 20% 10%	50V 16V 50V	IFB001 CD1	1-464-697-11	IF BLOCK (IF DISCRIMINATO		C	
C006	1-123-369-00		4.7MF	20%	25V		COI	L			
C008 C009 C010 C011	1-123-380-00 1-123-380-00 1-123-356-00 1-123-318-00	ELECT ELECT	1MF 1MF 10MF 33MF	20% 20% 20% 20%	50V 50V 16V 16V	L001 L002 L003	1-408-429-00 1-408-428-00 1-408-422-00		OR 390UH		
C012	1-123-380-00		1MF	20%	50V		TRA	NSISTOR			
CO13 CO14 CO15 CO16	1-123-356-00 1-163-119-00 1-130-072-00 1-123-318-00	CERAMIC CHIP	10MF 120PF 0.022MF 33MF	20% 5% 2% 20%	16V 50V 100V 16V	Q001 Q002 Q003 Q004	8-729-100-67 8-729-100-76 8-729-100-76 8-729-100-67	TRANSISTOR 2 TRANSISTOR 2 TRANSISTOR 2 TRANSISTOR 2	SA812 SA812		
C017 C018 C019	1-106-184-00 1-163-017-00 1-106-184-00	CERAMIC CHIP	0.0033MF 0.0047MF 0.0033MF	5% 10% 5%	50V 50V 50V	Q004 Q005 Q006	8-729-901-01 8-729-901-01	TRANSISTOR D	TC144EK TC144EK		
CO20 CO21	1-123-356-00 1-123-306-00	ELECT	10MF 47MF	20% 20%	16V 10V	Q007	8-729-901-01	TRANSISTOR D	TC144EK		
C022	1-123-306-00		47MF	20%	10V		RES	SISTOR			
C023	1-163-021-00				50V	R001	1-216-081-00	METAL CHIP	22K 5	% L/	/10W

Ref.No Part No.	Description			Remark	Ref.No	Part No.	Description		Remark
R002 1-216-109-00 R003 1-216-061-00 R004 1-216-057-00 R005 1-216-057-00 R007 1-216-037-00	METAL CHIP 3. METAL CHIP 2.	OK 5% 3K 5% 2K 5% 2K 5% 2C 5%	1/10W 1/10W 1/10W 1/10W 1/10W		S002 S003 S004 S005 S006	1-553-716-00 1-553-716-00 1-554-174-00 1-554-174-00 1-553-716-00	SWITCH, SLIDE SWITCH, SLIDE (WG MODEL) SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, SLIDE		
R008 1-216-039-00 R009 1-216-045-00 R010 1-216-063-00 R011 1-216-087-00 R012 1-216-095-00	METAL CHIP 39	9K 5% K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		S007 S008 S009 S010 S011	1-553-716-00 1-554-174-00 1-554-174-00 1-554-174-00 1-554-174-00	SWITCH, SLIDE SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, KEY BOARD		
R013 1-216-077-00	METAL CHIP 15		1/10W		S013	1-554-174-00	SWITCH, KEY BOARD		
R014 1-216-097-00 R015 1-216-097-00		OK 5%	1/10W 1/10W		*****	*****	********	*****	*****
R016 1-216-057-00 R017 1-216-077-00	METAL CHIP 2.	2K 5%	1/10W 1/10W (AE	P MODEL)		*A-7060-475-A	VP-1 BOARD, COMPLETE (V		
R018 1-216-049-00			1/10W						
R019 1-216-049-00 R020 1-216-057-00		5% .2K 5%	1/10W 1/10W			CAP	ACITOR		
R021 1-216-063-00	METAL CHIP 3.	9K 5%	1/10W (AB		C001		CERAMIC CHIP 15PF CERAMIC CHIP 0.001MF	5% 5%	50V 50V
R022 1-216-097-00	METAL CHIP 10	OK 5%	1/10W (AE	P MODEL)	C002 C003	1-163-141-00 1-163-133-00	CERAMIC CHIP 470PF	5%	507
R023 1-216-097-00		OK 5%	1/10W (AE		C004	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
R024 1-216-075-00 R025 1-216-089-00		2K 5% 7K 5%	1/10W (AE 1/10W (AE		C005	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
R026 1-216-067-00	METAL CHIP 5	.6K 5%	1/10W (AE	P MODEL)	C006	1-163-117-00		5%	50V
R027 1-216-067-00	METAL CHIP 5.	.6K 5%	1/10W (AE	P MODEL)	C007 C008	1-163-097-00 1-124-245-00	CERAMIC CHIP 15PF ELECT 4.7MF	5% 20%	50V 16V
R028 1-216-025-00 R029 1-216-295-00			1/10W (AE 1/10W	P MODEL)	C009 C010	1-163-115-00 1-163-033-00	CERAMIC CHIP 82PF CERAMIC CHIP 0.022MF	5% 10%	50V 25V
VA	RIABLE RESISTOR				C011	1-124-234-00	ELECT 22MF	20%	16V
DV001 1 220 000 00	DEC AD 1 CADDO	1 17v /	AED MODEL)		C012 C013	1-163-021-00 1-163-833-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.068MF	10%	50V 25V
RV001 1-228-996-00	RES, ADJ, CARBO	N 4/K (ALP MODEL		C014	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
TU	NER				C015	1-124-245-00	ELECT 4.7MF	20%	16V
TU001 <u></u> 1−463−761−11					C016 C017	1-163-105-00 1-163-105-00	CERAMIC CHIP 33PF	5% 5%	50V 50V
********	*****	*****	*****	******	C018	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
*A-7060-474-A	PR-13 BOARD, C					COM	INECTOR		
*A-7060-609-A	PR-13 BOARD, C						PIN, CONNECTOR 8P PIN, CONNECTOR 4P		
CC	NNECTOR					IC			
CN001 *1-564-012-00 CN002 *1-564-018-11	PIN, CONNECTOR		MODEL)		IC002 IC003	8-759-929-51 8-759-103-25 8-759-929-52 8-759-111-94	IC UPD4053BG		
DI	ODE					COI	II.		
D002 8-719-911-19	DIODE 1SS119								
D003 8-719-911-19	DIODE 1SS119 DIODE 1SS119				L001	•	MICRO INDUCTOR 10UH		
SV	VITCH								
	SWITCH, SLIDE				Q001	8-729-901-01	TRANSISTOR DTC144EK		
2001 1-200-110-00	, Julion, Jeide				-				

The components identified by shading and mark A are critical for safety. Replace only with part number specified. Teritorioristica di principali del 1888 del 1888

VP-1

TS-50

Ref.No	Part No.	Description	<u>R</u>	lemark	Ref.No	Part No.	Description		Remark
	RE	SISTOR				CO	NNECTOR		
R001 R002 R003 R004 R101	1-216-025-00 1-216-085-00 1-216-097-00 1-216-097-00 1-216-295-00	METAL CHIP 33K 5% METAL CHIP 100K 5% METAL CHIP 100K 5%	1/10W 1/10W 1/10W		CN102 CN103 CN104	*1-560-893-00 *1-560-892-00 *1-560-893-00	PIN, CONNECTOR : PIN, CONNECTOR ! PIN, CONNECTOR ! PIN, CONNECTOR ! PIN, CONNECTOR !	5P 4P 5P	
R102 R103	1-216-295-00 1-216-295-00	METAL CHIP 0 5% METAL CHIP 0 5%			i		PIN, CONNECTOR 4		
	CRY	YSTAL				DI	DDE		
X001 X002	1-527-317-00 1-567-160-21	OSCILLATOR, CRYSTAL (1 OSCILLATOR, CERAMIC (4	OMHz) .19MHz)		D101	8-719-100-03 <u>IC</u>	DIODE 1S2835		
*****		*******		*****	70101				
		TS-50 BOARD, COMPLETE	(WG MODEL)		IC102 IC103	8-759-603-41 8-759-603-41 8-759-007-55 8-759-157-40	IC TDA4944		
	*A-7060-608-A	TS-50 BOARD, COMPLETE	(AEP MODEL)			CO	<u>IL</u>		
	CAF	PACITOR			L101	1-408-408-00	MICRO INDUCTOR 8	.2UH	
C101	1-123-307-00		0.00			IC	LINK		
C102 C103	1-163-117-00 1-123-369-00	CERAMIC CHIP 100PF ELECT 4.7MF	20% 10V 5% 50V 20% 25V	/	PS101 <u>A</u>	1-532-637-00	LINK, IC (ICP-N2	5)	
C104 C105	1-163-109-00 1-163-109-00	CERAMIC CHIP 47PF CERAMIC CHIP 47PF	5% 50V 5% 50V			TRA	NSISTOR		
C106 C107 C108 C109 C110	1-123-822-00 1-163-019-00 1-123-356-00 1-123-318-00 1-123-379-00	ELECT 10MF ELECT 33MF	20% 10V 10% 50V 20% 16V 20% 16V 20% 50V		Q101 Q102 Q103 Q104 Q105	8-729-100-67 8-729-100-67 8-729-100-67	TRANSISTOR 2SC16 TRANSISTOR 2SC16 TRANSISTOR 2SC16 TRANSISTOR 2SC16 TRANSISTOR 2SC16	23-L7 23-L7 23-L7	
C111 C112 C113 C114	1-123-369-00 1-123-356-00 1-163-021-00 1-130-483-00	ELECT 10MF 20% CERAMIC CHIP 0.01MF	20% 25V 16V (WG MO 50V 5% 50V	DEL)	Q106 Q107 Q108	8-729-901-01	TRANSISTOR 2SC162 TRANSISTOR 2SA812 TRANSISTOR DTC144 ISTOR	(WG MODEL)	
C115	1-123-816-00	ELECT 10MF	20% 50V		B101				
C116 C117 C118 C119 C120	1-130-483-00 1-123-369-00 1-123-369-00 1-130-483-00 1-123-379-00	ELECT 4.7MF ELECT 4.7MF	5% 50V 20% 25V 20% 25V 5% 50V 20% 50V		R103	1-216-055-00	METAL CHIP 680 METAL CHIP 1.8 METAL CHIP 0	5% 1/10V 5% 1/10V K 5% 1/10V (V 5% 1/10V (V K 5% 1/10V	(KEP MODEL) IG MODEL)
C121 C122 C124 C125 C126	1-130-495-00 1-163-818-00 1-163-141-00	CERAMIC CHIP 100PF MYLAR 0.1MF CERAMIC CHIP 0.1MF 10% CERAMIC CHIP 0.001MF 10 CERAMIC CHIP 0.01MF	5% 50V 5% 50V 50V (WG MOI % 50V (WG MOI 50V	DEL)	R106 R107 R108 R109	1-216-057-00 1-216-057-00 1-216-061-00 1-216-073-00 1-216-057-00	METAL CHIP 2.2 METAL CHIP 3.3 METAL CHIP 10K	K 5% 1/10W K 5% 1/10W K 5% 1/10W 5% 1/10W K 5% 1/10W	
C127 C128		ELECT 47MF CERAMIC CHIP 0.01MF NECTOR	20% 16V 50V		R112 R113 R114	1-216-061-00 1-216-073-00 1-216-073-00	METAL CHIP 4.7 METAL CHIP 3.3 METAL CHIP 10K METAL CHIP 10K METAL CHIP 10K	K 5% 1/LOW 5% 1/LOW 5% 1/LOW	
CJ101 CJ102	1-563-717-11	CONNECTOR, BOARD TO BOA CONNECTOR, BOARD TO BOA	RD 6P RD 10P		R116		METAL CHIP 15K METAL CHIP 680 METAL CHIP 22K	5% 1/1 OW	

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified:

TS	-5()	С	B-8		R-24	DS	-1	6	D	R-35	_
Description				Remark	Ref.No	Part No.	Description				Remark	
METAL CHIP CARBON METAL CHIP METAL CHIP METAL CHIP	22K 1K 22K 22K 56K	5% 5% 5% 5%	1/10W 1/4W 1/10W 1/10W 1/10W	F	R002 R003 R004 R005 R006	1-216-037-00 1-216-037-00 1-216-037-00 1-216-037-00 1-216-037-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	330 330 330 330 330	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		

Ref.No	Part No.	Description			<u> </u>	Remark	Ref.No	Part No.	Description				Remark
R118 R119 R120 R121 R122	1-216-081-00 1-247-713-11 1-216-081-00 1-216-081-00 1-216-091-00	METAL CHIP CARBON METAL CHIP METAL CHIP METAL CHIP	22K 1K 22K 22K 56K	5% 5% 5% 5% 5%	1/10W 1/4W F 1/10W 1/10W 1/10W		R002 R003 R004 R005 R006	1-216-037-00 1-216-037-00 1-216-037-00 1-216-037-00 1-216-037-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	330 330 330 330 330	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R123 R124 R125 R126 R127	1-216-093-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	68K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		*****	*1-621-985-11 *3-689-521-01	FR-24 BOARD		****	******	****
R128 R129 R130 R131 R132	1-216-055-00 1-216-047-00 1-216-073-00 1-216-073-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.8K 820 10K 10K 4.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W		D001 D002 D003	<u>DIO</u> 8-719-812-32 8-719-812-33	DIODE TLY123	A			
R133 R134 R135 R136 R137	1-216-065-00 1-216-067-00 1-216-045-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 5.6K 680 4.7K 4.7K	5% 5%	1/10W 1/10W 1/10W			*******************		*****	****	*****	*****
R138 R139 R140 R141 R142	1-216-067-00 1-216-045-00 1-216-049-00 1-216-109-00 1-216-121-00	METAL CHIP METAL CHIP METAL CHIP	5.6K 680 1K 330K 1M	5% 5%		MODEL)		-	COVER (CC-10	17), IN	SULAT		
R143 R144	1-216-081-00 1-216-033-00 <u>VA</u>		22K 220 <u>R</u>	5% 5%	1/10W (WG 1/10W	MODEL)	C402 Z C403 Z C404 Z	<u>^</u> .1-136-472-13 <u>^</u> .1-161-742-00 <u>^</u> .1-161-742-00 <u>^</u> .1-161-742-00 <u>^</u> .1-161-742-00	CERAMIC CERAMIC CERAMIC	0.1MF 0.0022 0.0022 0.0022 0.0022	MF MF	20% 20% 20% 20% 20%	250V 400V 400V 400V 400V
RV101	1-228-996-00	RES, ADJ, CA	RBON 4	7K				<u>CO1</u>	NECTOR				
	CR	YSTAL					CN401	*1-560-891-00	PIN, CONNECT	OR 3P			
X101	1-567-121-00	VIBRATOR, CR	YSTAL	(4.1	9MHz)			FU:	_				
******	*******	*****	*****	****	*******	******	F401	<u>A</u> .1-532-279 - 00	FUSE, TIME-L	AG (T50	OmA 2	50V)	
	*1-621-987-11	CB-8 BOARD						TRA	ANSFORMER				

CONNECTOR

CNOO1 *1-564-005-00 PIN, CONNECTOR 6P CNOO2 *1-564-006-11 PIN, CONNECTOR 7P

DIODE

D001	8-719-106-22	DIODE	RD7.5M-B1
D002	8-719-106-22	DIODE	RD7.5M-B1
D003	8-719-106-22	DIODE	RD7.5M-B1
D004	8-719-106-22	DIODE	RD7.5M-B1
D005	8-719-106-22	DIODE	RD7.5M-B1
D006	8-719-106-22	DIODE	RD7.5M-B1

RESISTOR

1/10W R001 1-216-037-00 METAL CHIP 330 5%

T402 A.1-421-357-31 TRANSFORMER, LINE FILTER

*A-7060-585-A DR-35 BOARD, COMPLETE

7-685-646-79 SCREW +BVTP 3X8 TYPE2 IT-3

CAPACITOR

	C201	1-124-255-00	ELECT	1MF	20%	5 0V
	C202	1-163-141-00	CERAMIC CHIP	0.001MF	5%	5 0V
	C203	1-163-038-00	CERAMIC CHIP	0.1MF		25 V
	C204	1-163-038-00	CERAMIC CHIP	0.1MF		25V
	C205	1-123-874-00	ELECT	470MF	20%	167
	C207	1-124-124-00	ELECT	220MF	20%	6.3V
ı	6201	1-124-124-00	CLEUI	LLUM	L 0 /0	2.31

The components identified by shading and mark ${\bf A}$ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

DR-35

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C209 1-124-124-00	CERAMIC CHIP 0.1MF ELECT 220MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.001 ELECT 1MF	20%	25V 6.3V 25V 50V	JR009 JR010 JR011	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP O	5% 1/8W 5% 1/8W 5% 1/8W 5% 1/8W 5% 1/8W	
C213 1-163-038-00 C214 1-123-874-00 C216 1-123-333-00 C217 1-163-038-00 C218 1-163-141-00	CERAMIC CHIP 0.1MF ELECT 470MF ELECT 100MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.001	20%	25V 16V 16V 25V 50V	JR014 JR015 JR016	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP O	5% 1/8W 5% 1/8W 5% 1/8W 5% 1/8W 5% 1/8W	
C220 1-163-038-00 C221 1-163-038-00 C223 1-123-333-00	CERAMIC CHIP 820PF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.1MF ELECT 100MF CERAMIC CHIP 0.1MF	20%	50V 25V 25V 16V 25V	JR019 JR020 JR021	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-295-00	METAL CHIP O	5% 1/8W 5% 1/8W 5% 1/8W 5% 1/8W 5% 1/10W	
	CERAMIC CHIP 0.1MF	20%	16V 25V 25V 25V 25V	JR024 JR025 JR026	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O	5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W 5% 1/10W	
C231 1-123-299-00 C232 1-123-299-00 C233 1-123-323-00	ELECT 1000M	1F 20% 1F 20% 20%	25V 6.3V 6.3V 16V 25V	JR029	1-216-295-00 1-216-295-00 1-216-295-00		5% 1/10W 5% 1/10W 5% 1/10W	
C240 1-124-123-00 C241 1-123-296-00			6.3V 6.3V	L201 L202 L203 L205	1-408-944-00	COIL, CHOKE 200UH COIL, CHOKE 20UH COIL, CHOKE 20UH COIL, CHOKE 20UH		
CN201 *1-560-892-00 CN202 *1-560-895-00 CN203 *1-560-894-00 CN204 *1-560-890-00	PIN, CONNECTOR 4P PIN, CONNECTOR 7P PIN, CONNECTOR 6P PIN, CONNECTOR 2P			L206 L207 L208 L209 L210	1-408-945-00 1-408-944-00 1-408-944-00 1-408-944-00 1-408-944-00	COIL, CHOKE 200H COIL, CHOKE 20UH COIL, CHOKE 20UH COIL, CHOKE 20UH COIL, CHOKE 20UH		
DIC				L211	1-408-944-00	COIL, CHOKE 20UH		
D202 8-719-200-00	DIODE 31DQ05 DIODE 31DQ05			L264		COIL, CHOKE 200UH		
	DIODE 31DQ05 DIODE 1S2835 DIODE RD7.5ESB1			PS202/		LINK LINK, IC (ICP-F15)		
<u>IC</u>						NSISTOR		
IC201 8-759-908-95 IC202 8-759-908-95	IC TL1451CNS IC TL1451CNS			Q201 Q202 Q203		TRANSISTOR 2SA1441-I TRANSISTOR 2SC1623 TRANSISTOR 2SA812	L	
<u>JU</u>	MPER RESISTOR			Q204 Q205	8-729-113-33 8-729-112-61	TRANSISTOR 2SB733-4 TRANSISTOR 2SA1441-I	L	
JR001 1-216-296-00 JR002 1-216-296-00 JR003 1-216-296-00 JR004 1-216-296-00 JR005 1-216-296-00	METAL CHIP 0 METAL CHIP 0	5% 1/8 5% 1/8 5% 1/8 5% 1/8 5% 1/8	พ พ พ	0206 0207 0208 0209	8-729-100-66 8-729-100-76 8-729-901-01 8-729-112-61	TRANSISTOR 2SC1623 TRANSISTOR 2SA812 TRANSISTOR DTC144EK TRANSISTOR 2SA1441-I		
JR006 1-216-296-00 JR007 1-216-296-00		5% 1/8 5% 1/8		Q210 Q211	8-729-100-66 8-729-100-76	TRANSISTOR 2SC1623 TRANSISTOR 2SA812		

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

		D				Domank	Dof No	Dout No	Doccrintion			Remark
Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description			
0212 0213		TRANSISTOR DTO					C006 C007	1-163-019-00 1-130-026-00	CERAMIC CHIP	0.0068MF 0.0047MF	10% 5%	50V 50V
Q213 Q214		TRANSISTOR DTO					C008	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
	DEC	ISTOR					C009 C010	1-124-245-00 1-163-021-00	ELECT CERAMIC CHIP	4.7MF	20%	25V 50V
	KES	1310K										
R201	1-216-085-00	METAL CHIP	33K 33K		1/10W 1/10W		C011 C012	1-123-333-00 1-135-072-21	ELECT TANTAL. CHIP	100MF 0.22MF	20% 20%	25V 35V
R202 R203	1-216-085-00 1-216-115-00	METAL CHIP	560K		1/10W		C013	1-163-075-00	CERAMIC CHIP			50V
R204	1-249-413-11	CARBON	470	5%	1/6W		C014 C015	1-123-333-00 1-135-074-21	ELECT TANTAL. CHIP	100MF	20% 20%	25V 35V
R205	1-216-055-00	METAL CHIP	1.8K	5%	1/10W		015	1-135-074-21	TANTAL. CHIP	0.47141	20%	331
R206	1-216-055-00	METAL CHIP	1.8K	5%	1/10W		C016	1-130-491-00	MYLAR	0.047MF 47MF	5% 20%	50V 16V
R207 R208	1-216-051-00 1-216-095-00	METAL CHIP METAL CHIP	1.2K 82K	5% 5%	1/10W 1/10W		C017	1-124-236-00 1-163-112-00	ELECT CERAMIC CHIP		5%	50V
R210	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		C019	1-163-114-00	CERAMIC CHIP		5%	50V
R211	1-216-033-00	METAL CHIP	220	5%	1/10W		C020	1-163-103-00	CERAMIC CHIP	2/25	5%	50V
R212	1-216-687-11	METAL CHIP	33K	0.50%			C021	1-124-236-00	ELECT	47MF	20%	16V
R213	1-216-687-11	METAL CHIP	33K 560K		1/16W 1/10W		C022	1-163-106 - 00 1-163-117 - 00	CERAMIC CHIP		5% 5%	50V 50V
R214 R215	1-216-115-00 1-249-413-11	METAL CHIP CARBON	470	5%	1/6W		C024	1-163-096-00	CERAMIC CHIP		5%	50V
R216	1-216-055-00	METAL CHIP	1.8K		1/10W		C025	1-124-462-00	ELECT	10MF	20%	16V
R217	1-216-055-00	METAL CHIP	1.8K	5%	1/10W		C026	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
R218	1-216-051-00	METAL CHIP	1.2K	5%	1/10W		C027	1-162-816-11	CERAMIC CHIP		5%	50V 50V
R219 R220	1-216-699-11 1-216-679-11	METAL CHIP METAL CHIP	100K 15K		1/16W 1/16W		C028	1-163-077-00 1-163-077-00	CERAMIC CHIP			50V 50V
R221	1-216-085-00	METAL CHIP	33K	5%	1/10W		C030	1-163-139-00	CERAMIC CHIP		5%	507
R222	1-216-085-00	METAL CHIP	33K	5%	1/10W		C031	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
R223	1-216-067-00	METAL CHIP	5.6K	5%	1/10W		C032	1-124-255-00	ELECT	1MF	20%	50V
R224	1-216-115-00	METAL CHIP	560K 1.8K	5% 5%	1/10W 1/10W		C033	1-123-332-00 1-124-245-00	ELECT ELECT	47MF 4.7MF	20% 20%	25V 25V
R225 R226	1-216-055-00 1-216-055-00	METAL CHIP	1.8K	5%	1/10W		C036	1-124-236-00	ELECT	47MF	20%	167
R227	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		C037	1-124-236-00	FLECT	47MF	20%	16V
R228	1-216-099-00	METAL CHIP	120K	5%	1/10W		C038	1-124-257-00	ELECT	2.2MF	20%	35V
R229	1-216-075-00	METAL CHIP	12K	5%	1/10W		C039	1-163-075-00	CERAMIC CHIP		FO	50V
R230 R232	1-216-081-00 1-216-055-00	METAL CHIP METAL CHIP	22K 1.8K	5% 5%	1/10W 1/10W		C040 C041	1-163-133-00 1-163-077 - 00	CERAMIC CHIP		5%	50V 50V
											Εα	EOV
R233	1-216-091-00	METAL CHIP	56K	5%	1/10W		C042	1-163-117-00 1-163-021-00	CERAMIC CHIP		5%	50V 50V
	VAF	RIABLE RESISTOR					C044	1-124-255-00	ELECT	1MF	20%	50V
RV201	1_220 522 11	DES ADI MET	AL CLA	75 10V			C045	1-135-070-00 1-124-240-00	TANTAL. CHIP ELECT	0.1MF 10MF	20% 20%	35V 25V
	1-230-523-11	RES, ADJ, MET RES, ADJ, MET	AL GLA	ZE 10K			1 0040	1-124-240-00	LLLCI	10/11	200	
		RES, ADJ, MET					C047		CERAMIC CHIP		5%	50V 50V
*****	******	*****	*****	****	*****	******	C048		CERAMIC CHIP		5%	50V
	+ + 7 0 ·			(110	MODE: 1		C050	1-163-063-00				50V
	^A-/068-031-A	TC-3 BOARD,	*****	. I	MUUEL:	ł k	C051	1-103-0/5-00	CERAMIC CHIP	0.047MF		50V
		ACTTOD.					C053		CERAMIC CHIP		5%	50V 50V
	CAN	PACITOR					C054 C055		CERAMIC CHIP		<i>31</i> 0	50V
C001	1-124-236-00		47MF		20%	167	C056	1-163-075-00	CERAMIC CHIP	0.047MF		50V
C002		CERAMIC CHIP			5%	50V 50V	C057	1-163-0/5-00	CERAMIC CHIP	U.U4/MF		50V
C004		CERAMIC CHIP		4F		50V		COL	NECTOR			
C005	1-163-117-00	CERAMIC CHIP	100PF		5%	50 V	CNOOL	*1-564-014-00	DIN CONNECT	OP AP		
							1 CHOOT	1-304-014-00	FIN, CONNECT	UN MF		

TC-3

Part No. Part No. Description Pink Connection 4P Pink Connecti	D-6 W	- B				,							
Note	Ret.N	o Part No.	Description		Remark	Ref.No	Part No.	Descr	iption				Remark
Note	CNOO	2 *1-564-014-00 <u>TR</u>	PIN, CONNECTOR	1 P		R006 R007 R008	1-216-129-00 1-216-085-00 1-216-071-00	METAL METAL METAL	CHIP CHIP CHIP	33K	5%	1/10W	
Note	CV001	1-141-227-00	CAP, CERAMIC TR	IMMER 2	OPF .	R009 R010	1-216-063-00 1-216-099-00	METAL METAL	CHIP	3.9k	5%	1/10W	
Note		DIC	DDE			R011	1-216-075-00	METAL	CHIP	12K	5%	1/10W	
Note	D001 D002	8-719-109-97 8-719-911-06	DIODE RD6.8ESB2 DIODE 1SS106			R012 R013 R014	1-216-097-00 1-216-067-00 1-216-127-11	METAL METAL METAL	CHIP CHIP	5.6K 1.8M	5% 5%	1/10W 1/10W 1/10W	
Note		DEL	AY LINE			1.013	1-210-001-00	METAL	CHIP	10	5%	1/10W	
Note	DL001	1-415-313-00	DELAY LINE (1H)			R016 R017 R018	1-216-003-11 1-216-097-00 1-216-081-00	METAL METAL METAL	CHIP	100K	5%	1/10W	
Note		<u>1C</u>				R019	1-216-059-00	METAL	CHIP	2.7K	5%	1/10W	
Note	IC001 IC002 IC003	8-759-933-40 8-759-933-74 8-759-345-38	IC HD14538BP IC TDA2594			R021	1-216-081-00	METAL	CHIP				
Note	IC004	8-752-006-10	IC CX20061			R022 R023	1-216-083-00 1-216-079-00	METAL METAL	CHIP			1/10W	
Note		COI	<u>L</u>			R024 R025	1-216-041-00 1-216-043-00	METAL METAL	CHIP	470	5%	1/10W	
Note	L001 L002 L003	1-408-787-00 1-408-789-21 1-408-786-21	INDUCTOR CHIP 6 INDUCTOR CHIP 1 INDUCTOR CHIP 5	8UH 00UH 6UH		R026 R027	1-216-049-00 1-216-049-00	METAL METAL	CHIP	1K 1K	5% 5%	1/10W	
Note	L004 L005	1-408-786-21 1-408-788-21	INDUCTOR CHIP 5 INDUCTOR CHIP 8	6UН 2UН		R029 R030	1-216-085-00 1-216-083-00 1-216-045-00	METAL METAL	CHIP CHIP CHIP	27K	5%	1/10W	
Note	L006 L007 L008	1-408-775-41 1-408-776-00 1-408-789-21	INDUCTOR CHIP 6 INDUCTOR CHIP 8 INDUCTOR CHIP 1	.8UH .2UH		R031 R032	1-216-045-00 1-216-049-00	METAL METAL	CHIP CHIP	1K		1/10W	
Note		VAR	IABLE COIL	50011		R034 R035	1-216-049-00 1-216-067-00 1-216-061-00	METAL METAL METAL	CHIP CHIP CHIP	5.6K	5%	1/10W	
Note	LV001 LV002 LV003	1-408-512-00 1-408-530-00 1-408-512-00	COIL (VARIABLE)	LOUH 3.3UH		R036 R037	1-216-041-00 1-216-041-00	METAL METAL	CHIP CHIP	470	5%	1/10W	
Note		TRA	NSISTOR	LOUH		R038 R039 R040	1-216-039-00 1-216-041-00 1-216-045-00	METAL (CHIP CHIP CHIP	470	5% 5%	1/10W 1/10W	
Note	Q001 Q002	8-729-100-67 8-729-100-67	TRANSISTOR 2SC162 TRANSISTOR 2SC162	23-L7 23-L7		R041	1-216-057-00	METAL (CHIP	2.2K	5%	1/10W	
Note	Q004	8-729-100-67	TRANSISTOR 25C163	3-17		110-10	1-210-03/-00	METAL (JHIP	330	5%	1/10W	
Note		8-729-100-67	TRANSISTOR 2SC162	23-L7									
Note	Q007	8-729-901-04	TRANSISTOR DTA114	FK			1-216-057-00	METAL C	CHIP				
Q012 8-729-100-67 TRANSISTOR 2SC1623 R050 1-216-089-00 METAL CHIP 47K 5% 1/10W RESISTOR R051 1-216-089-00 METAL CHIP 47K 5% 1/10W R052 1-216-073-00 METAL CHIP 10K 5% 1/10W R053 1-216-073-00 METAL CHIP 10K 5% 1/10W R054 1-216-043-00 METAL CHIP 10K 5% 1/10W R055 1-216-053-00 METAL CHIP 10K 5% 1/10W R056 1-216-053-00 METAL CHIP 10K 5% 1/10W R057 1-216-053-00 METAL CHIP 10K 5% 1/10W R058 1-216-053-00 METAL CHIP 10K 5% 1/10W R059 1-216-053-00 METAL CHIP 10K 5% 1/10W R050 1-216-053-00 METAL CHIP 10K 5% 1/10W R055 1-216-053-00 METAL CHIP 10K 5% 1/10W R056 1-216-039-00 METAL CHIP 390 5% 1/10W R057 1-216-039-00 METAL CHIP 390 5% 1/10W R058 1-216-053-00 METAL CHIP 390 5% 1/10W R059 1-216-053-00 METAL CHIP 390 5% 1/10W	0009	8-729-100-67 8-729-100-67	TRANSISTOR 2SC162	3		R048	1-216-049-00	METAL C	HIP	1K			
RO01 1-216-093-00 METAL CHIP 68K 5% 1/10W RO02 1-216-079-00 METAL CHIP 18K 5% 1/10W RO03 1-216-075-00 METAL CHIP 18K 5% 1/10W RO04 1-216-043-00 METAL CHIP 2.2K 5% 1/10W RO04 1-216-043-00 METAL CHIP 2.2K 5% 1/10W RO05 1-216-053-00 METAL CHIP 390 5% 1/10W RO05 1-216-053-00 METAL CHIP	Q010	8-729-100-67	TRANSISTOR 2SC162	3			1-216-073-00	METAL C METAL C	HIP HIP				
RO01 1-216-093-00 METAL CHIP 68K 5% 1/10W R002 1-216-079-00 METAL CHIP 18K 5% 1/10W R003 1-216-057-00 METAL CHIP 18K 5% 1/10W R004 1-216-043-00 METAL CHIP 560 5% 1/10W R005 1-216-053-00 METAL CHIP 560 5% 1/10W R005 1-216-039-00 METAL CHIP 390 5% 1/10W R005 1-216-039-00 METAL CHIP 3	Q012	8-729-100-67	TRANSISTOR 2SC162	3				METAL C	HIP				
ROO2 1-216-079-00 METAL CHIP 18K 5% 1/10W ROO3 1-216-057-00 METAL CHIP 1.5K 5% 1/10W ROO4 1-216-043-00 METAL CHIP 2.2K 5% 1/10W ROO5 1-216-039-00 METAL CHIP 390 5% 1/10W ROO5 1-216-053-00 METAL CHIP 390 5% 1/10W ROO5 1-216-053-00 METAL CHIP 390 5% 1/10W ROO5 1-216-053-00 METAL CHIP 390 5% 1/10W		RESI	STOR			R053	1-216-073-00	METAL C	HIP				
ROO3 1-216-057-00 METAL CHIP 2.2K 5% 1/10W ROO5 1-216-043-00 METAL CHIP 560 5% 1/10W ROO5 1-216-053-00 METAL CHIP 1.5K 5% 1/10W ROO5 1-216-053-00 METAL CHIP 390 5% 1/10W ROO5 1-216-053-00 METAL CHIP 390 5% 1/10W	R002	1-216-079-00	METAL CHIP 18K			R055						1/10W	
	R004	1-216-043-00	METAL CHIP 560	K 5% 5%	1/10W 1/10W	R057	1-216-039-00	METAL C	HIP	390	5%	1/10W	

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description				Remark	
R059	1-216-091-00		1/10W			IC						
	VAR	IABLE RESISTOR			IC721	8-759-106-02	IC UPC4570G2					
BV001	1-230-871-11		2K			JAC	K					
RV002 RV003 RV004	1-230-873-11 1-230-871-11 1-230-867-11 1-230-867-11	RES, ADJ, METAL GLAZE 4 RES, ADJ, METAL GLAZE 2 RES, ADJ, METAL GLAZE 1 RES, ADJ, METAL GLAZE 1	7K 2K K		J301 J401	1-507-899-21 1-507-899-00	JACK (SMALL)					
RV006	1-230-868-11	RES, ADJ, METAL GLAZE 2	2.2K			JUM	PER RESISTOR					
		RES, ADJ, METAL GLAZE 1			JR054	1-216-295-00 1-216-295-00	METAL CHIP	0	5% 5%	1/10W 1/10W		
V001		STAL OSC (4 42MHz)			JR055 JR056 JR057	1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 5% 5%	1/10W 1/10W 1/10W		
X001		CRYSTAL, OSC (4.43MHz)										
*****	*********	*********	******	*****	JR099	1-216-296-00		0	5%	1/8W		
	*A-7070-024-A	LD-1 BOARD, COMPLETE				RES	SISTOR					
	DIO	DDE			R710 R731 R732	1-216-061-00 1-216-105-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP	3.3K 220K 22K	5% 5% 5%	1/10W 1/10W 1/10W		
D001	8-719-928-54	DIODE GL-450S			R733 R734	1-216-025-00 1-216-025-00	METAL CHIP METAL CHIP	100 100	5% 5%	1/10W 1/10W		
*****	******	*********	******	******	R735	1-216-083-00	METAL CHIP	27K	5%	1/10W		
	A-7070-025-A	MS-4 BOARD, COMPLETE			R741 R742	1-216-105-00 1-216-081-00	METAL CHIP METAL CHIP	220K 22K	5% 5%	1/10W 1/10W		
C902		CERAMIC CHIP 0.1MF PIN, CONNECTOR (HOOK TO	(PE)	257	R743 R744	1-216-025-00 1-216-025-00	METAL CHIP METAL CHIP	100 100	5% 5%	1/10W 1/10W		
****		*******		*****	R745	1-216-083-00	METAL CHIP	27K	5%	1/10W		
					*****	*****	******	*****	*****	*****	*****	*
		LS-9 BOARD				*1-621-998-11	TE-6 BOARD					
		PIN, CONNECTOR (HOOK T				*3-716-845-01	HOLDER (LEFT), SEN	SOR			
*****	******	********	*****	*****		TRA	ANSISTOR					
	*1-621-982-11	MJ-11 BOARD *******			0001	8-729-904-10	PT360FS					
	CA	PACITOR				SW:	ТСН					
C725 C726	1-124 462-00 1-124-462-00	ELECT 10MF	20% 20%	16V 16V	S904 S905		SWITCH, LEAF SWITCH, LEAF					
C731 C732 C733	1-124-462-00 1-124-225-00 1-163-141-00	ELECT 100MF	20% 20% 10%	16V 6.3V 50V	*****	******		*****	*****	****	*****	*
C734	1-163-121-00	CERAMIC CHIP 150PF	5%	50V		*1-621-997-11	TE-5 BOARD					
C741 C742 C743	1-124-462-00 1-124-225-00 1-163-141-00		20% 20% 10%	16V 6.3V 50V		*3-716-844-01	HOLDER (RIGH	IT), SE	NSOR			
C744		CERAMIC CHIP 150PF	5%	50V		PI	LOT LAMP					

TC-3 LD-1 MS-4 LS-9 MJ-11 TE-6

When indicating part by reference number, please include the board name.

<u>DIODE</u>
D101 8-719-109-60 DIODE RD2.7ESB2

PL001 1-518-621-11 LAMP, PILOT PL002 1-518-621-21 LAMP, PILOT

TE-5 DL-15 DO-1 DT-63

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description	<u>on</u>			Remark
	TRA	NSISTOR				*1-560-893-00		CTOR 5P			
Q001	8-729-904-10	PT360FS			CN106	*1-560-891-00 *1-560-896-00	PIN, CONNE	CTOR 8P			
	SWI	тсн				*1-560-893-00 *1-560-891-00		CTOR 5P			
S001	1-570-112-11	SWITCH, LEAF			CN203	*1-560-894-00	PIN, CONNE	CTOR 6P			
*****	******	*******	******	******		DIC	DE				
	*1-621-993-11	DL-15 BOARD			D103 D104	8-719-911-19 8-719-911-19	DIODE 1SS1	19			
	DIO	DDE			D106 D107	8-719-110-16 8-719-200-02	DIODE RD10 DIODE 10E2	ES-B1			
D001 🛕	.8-719-109-50	DIODE RD2.0ESB1			D1:08	8-719-200-02	DIODE 10E2				
D301 🛦	8-719-500 32	DIODE D3SB10			D109 D110	8-719-110-42 8-719-109-93	DIODE RD15	ES-B3			
	IC				D111	8-719-107-94	DIODE 1SS2	02			
10001	8-759-803-56	IC L7808ML			D112 D114	8-719-115 - 21 8-719-109-98	DIODE RD39	JSB 8ES-B3			
	TRA	NSISTOR			D115	8-719-110-42					
Q001	8-729-900-80	TRANSISTOR DTC114ES			D116 D117	8-719-110-16 8-719-109-82	DIODE RD4.	7ES-B3			
	RES	ISTOR			D119	8-719-911-19	DIODE 1SS1	19			
R001	1-249-417-11	CARBON 1K 5%	1/6W	1		IC	LINK				
******	******	*******	******	*****	PS101/	1-532-727-11 1-532-605-00	LINK, IC (ICP-N5)			
,	*1-621-992-11	DO-1 BOARD			PS103/	1-532-686-00 1-532-727-11	LINK, IC (ICP-F75)			
	TRA	NSISTOR				TRA	NSISTOR				
Q501 Q502	8-729-303-58 8-729-804-67	TRANSISTOR 2SC3851-0 TRANSISTOR 2SB1133-R			Q103 Q106 Q107	8-729-103-43 8-729-177-32 8-729-177-32	TRANSISTOR	2SD773			
*****	******	*******	******	*****			ISTOR				
,	*1-621-994-11				R103	1-249-421-11		2.2K	5%	1/ 6 W	
	1 000 046 44	******			R104 R105	1-249-421-11 1-246-449-25		2.2K 100		1/6W 1/4W	
		HARNESS (DD-12)			R107 R108	1-249-425-11 1-249 - 434-11	CARBON CARBON	4.7K 27K	5% 5%	1/6W 1/6W	
	CAP	ACITOR			R109	1-249-441-11	CARBON	100K	5%	1/6W	
C102 C103	1-126-175-11 1-123-334-00		20% 20%	25V 25V	R111 R112		CARBON	15K 2.7K	5%	1/6W	
C104 C105	1-123-332-00 1-123-332-00		20% 20%	16V 16V	R113	1-249-416-11		820	5%	1/6W 1/6W	
C110	1-125-447-11	DOUBLE LAYERS 1F	20%	5.5V	*****	******	******	*****	****	****	*****
	1-123-387-00 1-123-387-00	ELECT 47MF ELECT 47MF	20%	1000							
C114	1-106-212-00	MYLAR 0.047MF	20% 10%	100V 100V							
0113	1-123-334-00		20%	257							
CNICO		NECTOR									
CNTO5 *	1-560-893-00	PIN, CONNECTOR 5P									

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
		CELLANEOUS ********	
C901 M901 M903 M904 M905 M906	1-464-785-11 1-534-817-XX 1-535-535-11 *1-555-110-00 1-161-057-00 X-3711-961-1 8-835-138-01 A-7040-065-A A-7090-661-A	TERMÍNAL, SHAFT GROUND CABLE, PIN CAP, CERAMIC 0.033MF X C901 MOTOR SUB ASSY, REEL MOTOR, DC (DNR-5301B) (CONTROL)	TE)
S901 S902	1-554-942-11 1-554-942-11 1-448-836-11	SWITCH, PUSH (RECOG R) SWITCH, PUSH (RECOG L) TRANSFORMER, POWER	

ACCESSORIES AND PACKING MATERIALS

Part No.	Description	Remark
1-534-049-31	COMMANDER ASSY CORD, CONNECTION (RK-74H) CORD ASSY, COAXIAL	
1-551-734-11 *3-677-503-00 3-694-484-01 *3-713-408-01 *3-713-409-01	SHEET, PROTECTION DRIVER, VOLUME CASE, ACCESSORY	
*3-713-465-01 *3-713-487-01	CUSHION (LOWER) LID, ACCESSORY CASE INDIVIDUAL CARTON (WG MODEL) INDIVIDUAL CARTON (AEP MODEL) MANUAL, INSTRUCTION (ENGLISH)	
3-765-626-41	MANUAL, INSTRUCTION (FRENCH, GERMANS, DUTCH)	
3-765-626-51	MANUAL, INSTRUCTION (SPANISH, SWEDISH, ITALIAN)	
X-3711-986-1	INSULATOR ASSY	

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

SECTION 7 MECHANISM ADJUSTMENT

7-1. MECHANICAL CHECK, ADJUSTMENT AND PREPARATIONS FOR REPLACEMENT

Note: Regarding the removal procedures of the cabinet and board, see Section 2.

7-1-1. Cassette Compartment Assembly And Operation Without Tape Inserted

Note: The set will not operate if there is a strong light source near it.

1. Method to loading (See Fig. 7-1)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) Connect a power supply and press the power button to turn on.
- 3) Press the EJECT button.
- 4) Disconnect power supply.
- 5) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 6) Place tape over the pin coming out of the push switch ①.
- 7) Place a cap 2 over the LED assembly.
- 8) Press the lock holder 3 in the direction of arrow A.
- 9) Short-circuit the leaf switch 10 by clip 5, etc.
- 10) Connect power supply and press the power button to turn on.

2. Putting into Playback State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place the rubber band 6 as shown between S reel and T reel sides.
- 3) Press the playback button, and when the Treel side starts to rotate, press the tension regulator arm assembly in the direction of arrow (3). (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

3. Putting into Recording State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place a rubber band 6 as shown between the S reel and T reels.
- 3) Press the recording button, and when the Treel side starts to rotate, push the tension regulator arm assembly in the direction of arrow (a). (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

4. Eject

1) Press the EJECT button.

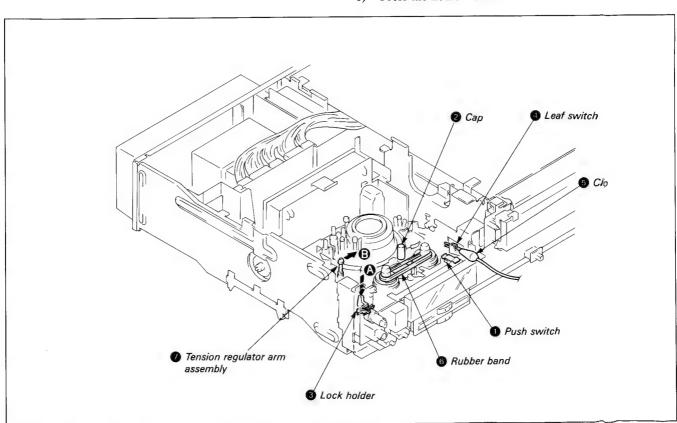


Fig. 7-1.

7-1-2. Handling of Mode Selector

1. Location of parts (External view)

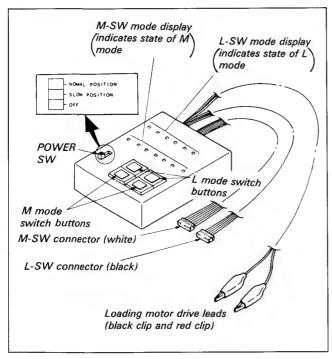


Fig. 7-2.

2. Connection (See Fig. 7-3.)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 3) Remove the MS-4 board and LS-9 board connectors.
- 4) Insert the M-SW connector (6P connector, 6 harness, white) 1 into the set MS-4 board.
- 5) Insert the L-SW connector (6P connector, 4 harness, black) 2 into the set LS-9 board.
- 6) Connect the loading motor drive lead 3 red lead side to the loading motor red clip and the brown lead to the black clip.

3. Caution

- 1) When operating L-SW, be sure to set the M-SW mode to LOADING/UNLOADING.
- 2) When operating M-SW, be sure to set the L-SW mode to TOP or END.

4. Handling

BLANK lights up regardless of L MODE or M MODE when it is in neither mode during select.

1) L MODE

- When the L mode switch button right side is pressed continuously, the display lights up from LOADING TOP → LOADING END, in order from left to right.
- To go from LOADING END → LOADING TOP, press the left button continuously until the desired MODE is reached.
- In slow position, the L mode operates more slowly than for normal position.

2) M MODE

- Set L-SW to LOADING TOP before performing EJECT.
- Set L-SW to LOADING END to perform FF/REW → RVS or RVS → FF/REW.
- When the right M MODE switch button is pressed continuously, the display lights up from EJECT → RVS in order from left to right.
- To go from RVS → EJECT, press the left side switch button continuously until the desired MODE is reached.

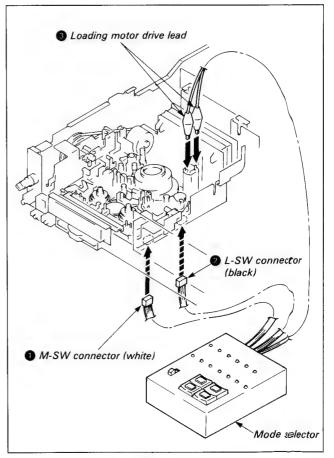
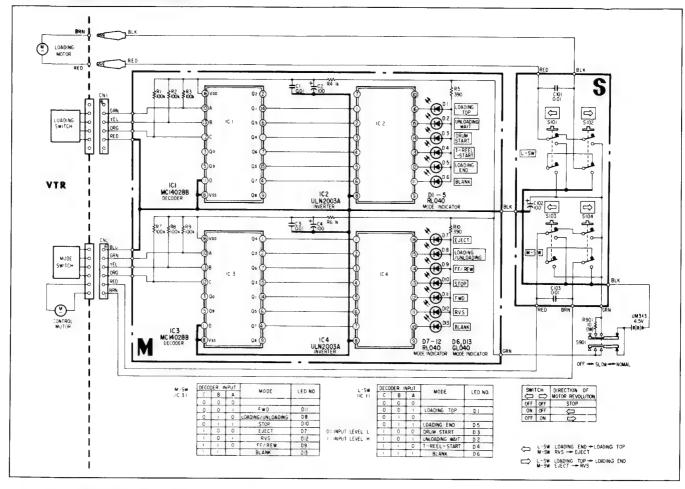


Fig. 7-3.

5. Mode Selector Schematic



	6.	Mode	Selector	Parts	List
--	----	------	----------	-------	------

Symbol	Part No.	Part Name			Symbol	Part No.	Part Name		
		capacitors					IC		
C1	1-108-579-00	mylar	$0.01 \mu F$	50V	IC1	8-759-240-28 IC	TC4028BP		
C2	1-123-333-00	electrolytic	$100 \mu F$	24V	IC2	8-759-120-03	IC	μPA20	003A
C3	1-108-579-00	mylar	$0.01 \mu F$	50V	IC3	8-759-240-28	IC	TC402	
C4	1-123-333-00	electrolytic	$100 \mu F$	24V	IC4	8-759-120-03	IC	μPA2003.A	
C101	1-108-579-00	mylar	$0.01 \mu F$	50V					
C102	1-123-333-00	electrolytic	100μF	24V	0		resistor		
C103	1-108-579-00	mylar	$0.01 \mu F$	50V	R1	1-247-179-00	carbon	100K	1 /4W
					R2	1-247-179-00	carbon	100K	1/4W
		Diodes			R3	1-247-179-00	carbon	100K	1/4W
D1	8-179-812-31	diode	RL040		R4	1-247-131-00	carbon	1K	1 /4W
D2	8-179-812-31	diode	RL040		R5	1-247-121-00	carbon	390	1/4W
D3	8-179-812-31	diode	RL040						
D4	8-179-812-31	diode	RL040		R6	1-247-131-00	carbon	1K	1 /4W
D 5	8-179-812-31	diode	RL040		R7	1-247-179-00	carbon	100K	1 /4W
					R8	1-247-179-00	carbon	100K	1 /4W
06	8-719-812-33	diode	GL040		R9	1-247-179-00	carbon	100K	1 /4W
D 7	8-179-812-31	diode	RL040		R10	1-247-121-00	carbon	390	1 /4W
28	8-179-812-31	diode	RL040		H				
09	8-179-812-31	diode	RL040		R901	1-214-594-00	metal film	10	1 * W
D10	8-179-812-31	diode	RL040						
011	8-179-812-31	diode	RL040						
012	8-179-812-31	diode	RL040						
D13	8-719-812-33	diode	GL040						

7-2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenance in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

7-2-1. Cleaning of Rotary Drum Assembly

 Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref. No. J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by finger to clean.

Note: Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by finger.

Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so please follow the instruction above for cleaning.

7-2-2. Cleaning of Tape Path (See Fig. 7-4)

 Place the cassette compartment assembly in EJECT state, and clean the tape path (No. 1 ~ No. 11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid.

7-2-3. Cleaning of Drive System

1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

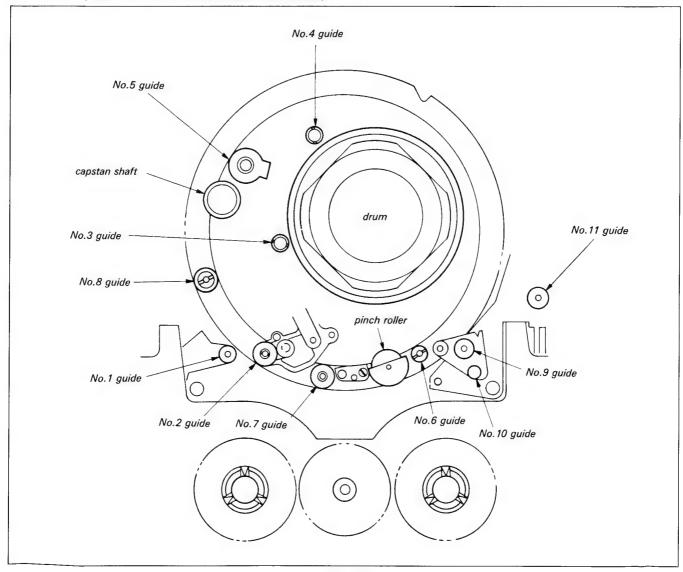


Fig. 7-4.

7-2-4. Periodic Check

Perform following according to number of hours of use.

							\bigcirc C	leanning	(O O	iling	★ Repla	cement ☆ Checking
	Location	Hours of Use (H)										
Location		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Notes
Tape Path	Cleaning of tape path surface	0	0	0	0	0	0	0	0	0	0	Be careful of oil
	Cleaning and degaussing of rotary drum assembly	0	0	0	0	0	0	0	0	0	0	Be careful of oil
Drive System	L motor belt	0	0	0	0	0	0	0	*	0	0	3-686-546-01 Replace here, or every two years.
	Plunger solenoid	_	_	_	0	_	_	_	0	1-	_	1-454-377-31
	Capstan shaft bearing	_	0	_	0	_	0	_	0		0	Be careful not to get oil on the tape path surface.
	Loading motor	_	☆	_	☆	_	☆	_	☆	<u> </u>	☆	A-7040-065-A
	Control motor	_	☆	_	☆	_	☆	_	☆	! —	☆	8-835-110-01
	LS motor belt	0	0	0	0	0	0	0	*		0	3-713-670-01
	LS motor	_	☆		☆	_	☆	_	☆	_	☆	A-7090-661-A
	Reel motor	_	☆	_	☆		☆	_	☆		☆	A-7040-066-A
Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
Performance Che	Back tension measurement		☆	_	☆		☆	_	☆	_	☆	
	Brake system	_	☆	_	☆	_	☆	_	☆	_	☆	
	FWD, RVS torque measurement	_	☆	_	☆	_	☆	_	☆	_	☆	

Note: When performing an overhaul, refer to the items above when replacing parts.

Note: Sony Oil

- Be sure to use Sony Oil. (There is a danger of trouble occurring if a different viscosity is used.)
 Sony Oil: Parts No. 7-661-018-01 (Mitsubishi Diamond oil Hydrofluid EP56)
- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.
- One drop of oil means the amount which sticks to a 2mm diameter rod, as shown in Fig. 7-5.

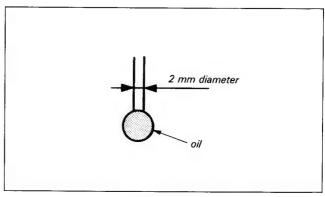


Fig. 7-5.

7-2-5. Service Jig Table

Ref. No.	Name	Part No.	Jig	Use, Notes
J-1	Cleaning fluid	Y-2031-001-1		
J-2	Chamois cloth	2-034-697-00		_
J-3	Head degausser	Commercially sold		
J-4	Small adjustment mirror, spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape (WR5-1C)	8-967-995-06		Tape path
J-6	Dial tension gauge	J-6080-827-A		torque measurement
J-7	Tension measurement reel	J-6080-831-A		with $\phi 30$ tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ 16 string
J-9	No. 10 gear phase jig	J-6080-823-A	GD-2047	
J-10	Rotary drum jig	(packed with the rep	air rotary upper d	rum)
J-11	No. 6 guide lock jig	J-6080-826-A		
J-12	FWD, RVS take-up torque cassette	J-6080-824-A	GD-2089	
J-13	Mode selector	J-6080-825-A		for all models
J-14	TRACK SHIFT & MONITOR JIG	J-6080-851-A		Tape path
J-15	RF/SWP connector	J-6080-883-A		Tape path
J-16	CTL connector	J-6080-884-A		Tape path

Other equipment: Oscilloscope

Analog tester (20k Ω)

Alialog tester			
J-1	J-2	J-3	J-4
J-5	J-6	J-7	J-8
J-9	J-10 (Packed with repair use rotary upper drum)	J-11	J-12
J-13	J-14	J-15	J-16

7-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note: Use the mode selector (Ref. No. J-13) for this mechanical check, adjustment and replacement.

The mode inside the _____ is the mode set by pressing the mode selector button.

7-3-1. S Reel Table Assembly (See Fig. 7-6.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to FF/REW mode.
- 3) Remove screw 1 and reel table stopper 2.
- 4) Remove the S reel table assembly 3.

Note: Be sure to hold the upper reel hook when removing.

- 1) Place a half drop of oil on the spindle 4 upper surface.
- 2) Move the S main brake assembly, **5** in the direction of arrow.
- 3) Mount the S reel table assembly 3, being careful not to hit the tension regulator band assembly 6.
- 4) Mount the reel table stopper 2 and tighten with screw 1.
- 5) Set to LOADING/UNLOADING mode.
- 6) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

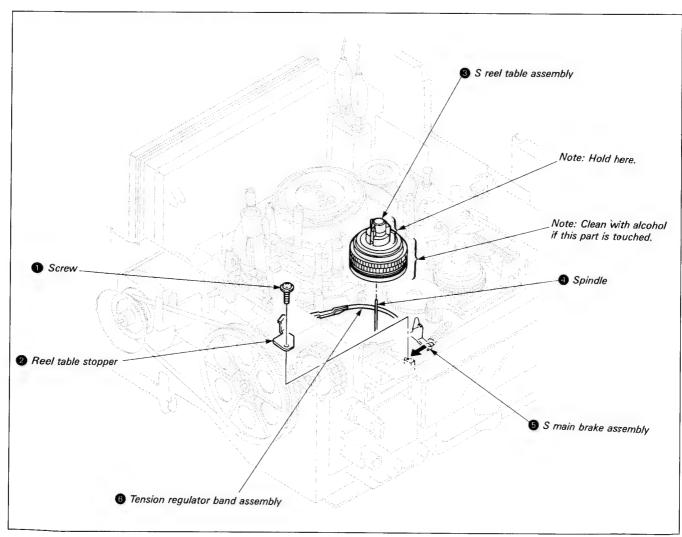


Fig. 7-6.

7-3-2. T Reel Table Assembly (See Fig. 7-7.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to UNLOADING WAIT mode.
- 3) Place the spring 2 on the T.S brake assembly 1 on the hook on the lock slider assembly.
- 4) Remove the stopper washer 3 and the T soft brake assembly 1.
- 5) Set to EJECT mode.
- 6) Move drive gear (B) assembly 4 in the direction of arrow.
- 7) Remove T reel table assembly 6.

Note: Be sure to hold the upper reel hook when removing.

- 1) Place a half drop of oil on the spindle 6 upper surface.
- 2) Move the drive gear (B) assembly 4 in the direction of arrow. (Check EJECT mode.)
- 3) Mount the T reel table assembly 5.
- 4) Mount the T soft brake assembly 1 and the stopper washer 3.
- 5) Place the spring 2 on the T.S brake assembly 1 hook.
- 6) Set to LOADING TOP, LOADING/UNLOADING mode.
- 7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

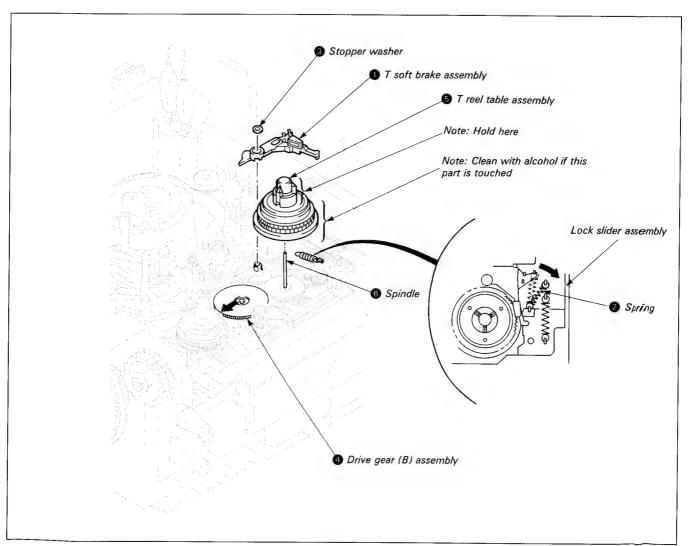


Fig. 7-7.

7-3-3. Pinch Press Arm Assembly (See Fig. 7-8)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Place the spring 1 on the pinch press arm assembly 2.
- 3) Remove the stopper washer 3 and the pinch press arm assembly 2.

- 1) Place a half drop of oil on shaft 4.
- 2) Mount the pinch press arm assembly 2 and the stopper washer 3.
- 3) Place the spring 1 on the tension regulator spring hook assembly 6.
- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

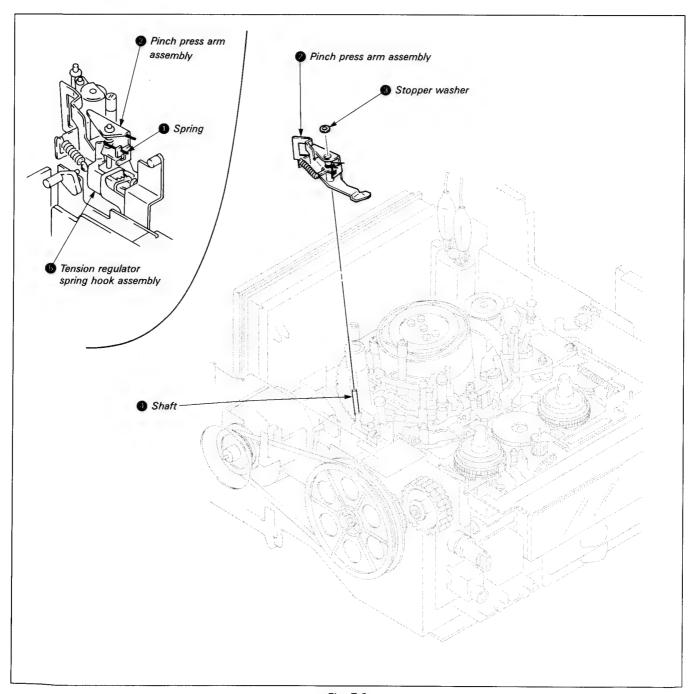


Fig. 7-8.

7-3-4. Tension Regulator Arm Assembly (See Fig. 7-9.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- Remove the mechanism as described in item Section 2, 2-15.
- 3) Remove the LS motor belt 1.
- 4) Remove the Four screws 2, and then move the Front base 3 in the direction of arrow.
- 5) Change the spring position as described in 7-3-3. 1. Removal, 2). (See Fig. 7-8.)
- 6) Remove tension spring 4. (Note its position.)
- 7) Remove screw 6 and the tension regulator spring hook assembly 6.
- 8) Set to FF/REW mode.
- 9) Remove the tension regulator band assembly hook 2.
- 10) Remove the tension regulator arm assembly 8.

- 1) Place a half drop of oil on the spindle 9.
- 2) Mount the tension regulator arm assembly 3, placing the tension regulator load arm assembly in the tension regulator arm assembly 3 cam groove (on the back).
- 3) Mount the tension regulator band assembly hook **1**. (Do not touch the band or change its shape.)
- 4) Set to LOADING/UNLOADING mode.
- 5) Mount the tension regulator spring hook assembly 6 and tighten with screw 5.
- Replace tension spring in its original position and lock the screws.
- 7) Position the spring according to item 7-3-3, 2. Mounting, 3). (See Fig. 7-8.)
- 8) Mount the Front base 3, and then tighten with four screws 2.
- 9) Mount the LS motor belt 1.
- 10) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.
- 11) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

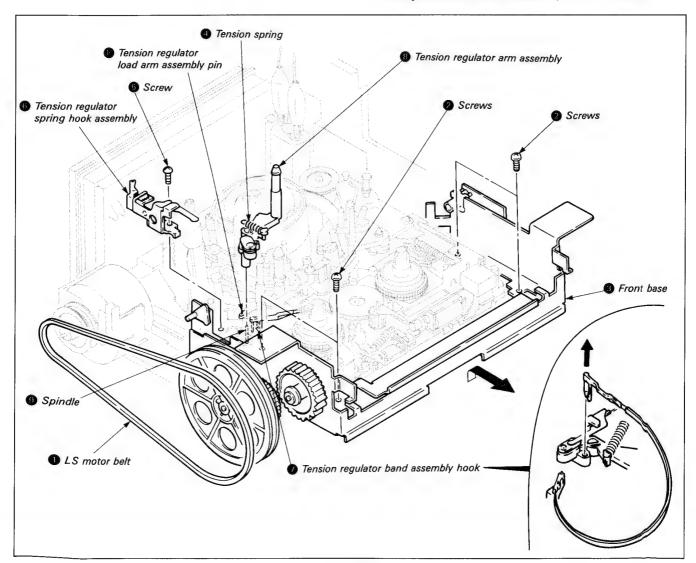


Fig. 7-9.

7-3-5. Tension Regulator Band Assembly (See Fig. 7-10.)

1. Removal

- 1) Remove the S reel table assembly according to item 7-3-1, 1. Removal. (See Fig. 7-6.)
- 2) Remove the band arm hook 1.
- 3) Remove hook 2 and the tension regulator band assembly

- 1) Mount the tension regulator band assembly 3. (Do not touch the band or change its shape.)
- 2) Fit on the band arm hook 1.
- 3) Mount the S reel table assembly according to 7-3-1, 2. Mounting. (See Fig. 7-6.)
- 4) Perform 7-3-21. FWD Back Tension Adjustment.

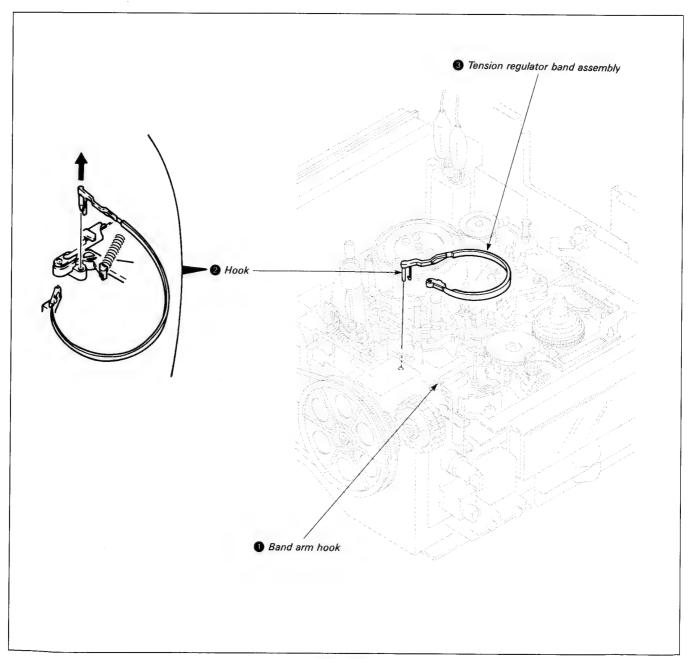


Fig. 7-10.

7-3-6. Loading Motor Assembly (See Fig. 7-11.)

1. Removal

- 1) Connect a power supply and press the push button to turn on.
- 2) Press the EJECT button.

Note: Disconnect the power supply after being set to EJECT state.

- 3) Open the SP-2 board 1 according to item Section 2, 2-6.
- 4) Remove connector 2 from SP-2 board 1.
- 5) Remove L motor belt 3.
- 6) Remove the two screws 4.
- 7) Remove the claw 6 and the loading motor assembly 6.

- 1) Mount the loading motor assembly 6 and tighten the two screws 4.
- 2) Mount L motor belt 3.
- 3) Connect connector 2 to SP-2 board 1. (See Fig. 3-6)
 - Mount SP-2 board by following the procedure in item Section 2, 2-6. in reverse.

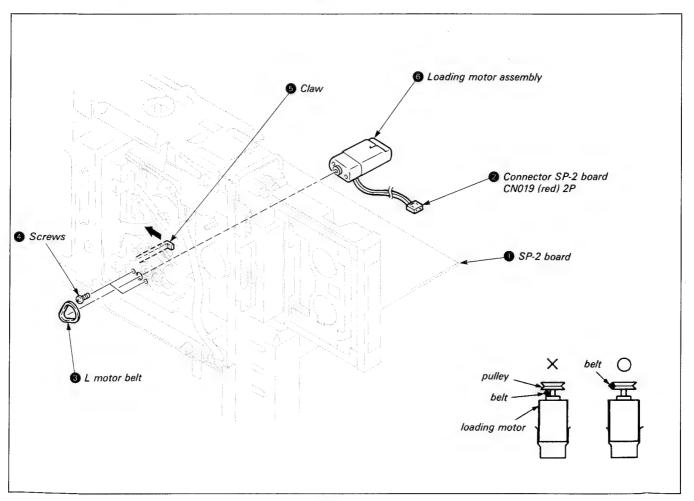


Fig. 7-11.

7-3-7. Loading Ring Assembly (See Fig. 7-12, 13.)

1. Removal

- Remove the mechanism as described in item Section 2, 2-15.
- 2) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 3) Operate the mode selector, and move the guide base assembly 1 until just before lock, and the entrance guide assembly 2 until just before lock where the ring stopper
 3 screw is visible. (Do not move loading ring assembly 1.)
- 4) Remove the stopper washer 4 and remove No. 10 gear assembly 5.
- Remove screw 6 and the roller retainer 7 and ring roller8.
- 6) Remove the two screws (9) and the ring stopper (3) and ring roller (10).
- 7) Remove the loading ring assembly **1** as shown by arrow. (See Fig. 7-12.)

Note: Be careful that the loading ring assembly 10 does not touch the drum when it is removed.

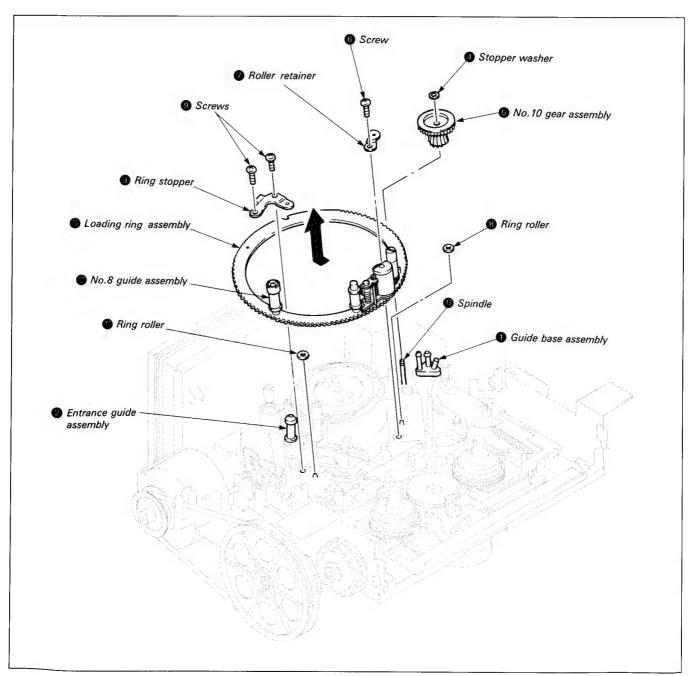


Fig. 7-12.

2. Mounting

- Mount the loading ring assembly so that it is in unthreaded state (pinch roller arm assembly is on the front panel side). (Check that is in the state in step 3) under Removal.)
- 2) Mount the ring roller 1 and ring stopper 3 and tighten with the two screws 3. (No. 8 guide assembly 2 should be closer to the front panel than the ring stopper 3.)
- Mount the ring roller 3 and roller retainer 7 and tighten with screw 6. (Check that the loading ring assembly matches the three ring spacers.)
- 4) Place a half drop of oil on the spindle (8). (See Fig. 7-12.)
- 5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No. 10 gear phase jig (Ref. No. J-9). (See Fig. 7-13.)

- 6) Mount No. 10 gear assembly 6 and stopper washer 4 while pushing the No. 8 guide assembly 2 against the ring stopper 3.
- 7) Pull out the No. 10 gear phase jig.
- 8) Set to LOADING TOP mode. (See Fig. 7-12.)
- 9) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.
- 10) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

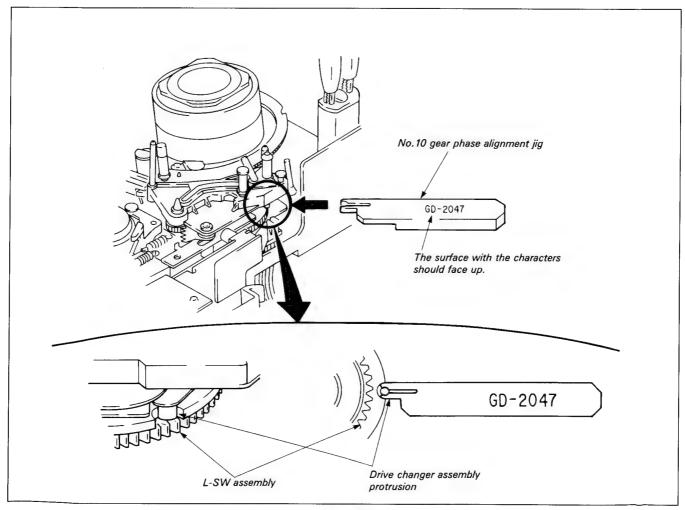


Fig. 7-13.

7-3-8. Pinch Roller Assembly (See Fig. 7-14. ~ 25.)

1. Removal

- Remove the loading ring assembly as described in 7-3-7.,
 Removal. (See Fig. 7-12.)
- 2) Remove stopper washer 1. (See Fig. 7-14.)
- 3) Change the position of the torsion spring 3 on No. 7 guide assembly 2. (See Fig. 7-15.)
- 4) Rotate pinch roller arm assembly 4 in the direction of arrow. (See Fig. 7-16.)
- 5) Remove pinch roller arm assembly 4 in the direction of arrow. (See Fig. 7-17.)
- 6) Remove torsion spring 3. (See Fig. 7-18.)

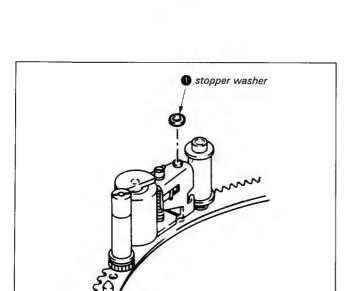


Fig. 7-14.

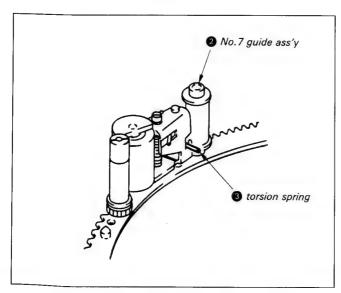


Fig. 7-15

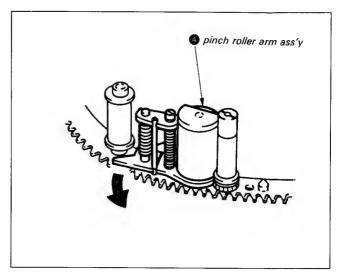


Fig. 7-16.

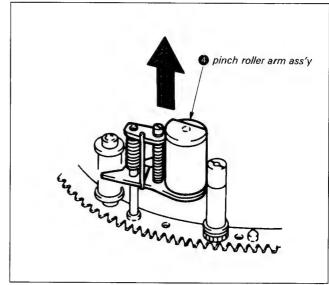


Fig. 7-17.

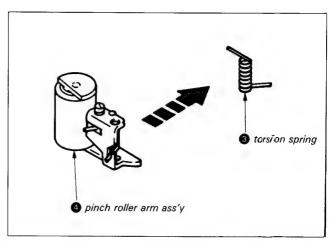


Fig. 7-18.

- 1) Position torsion spring 3. (See Fig. 7-19.)
- 2) Insert the end of a paper clip **6** or other thin rod inside the pinch roller arm assembly hole **6**. (See Fig. 7-20, 7-21.)
- 3) Push the end of the clip 5 through to contact the loading ring assembly shaft 7 and mount the pinch roller arm assembly 4. (See Fig. 7-22, 7-23.)
- 4) Place the spring on No. 7 guide assembly 2. At this time, check that the spring is hooked on section A. (See Fig. 7-24.)
- 5) Mount the stopper washer ①. (See Fig. 7-25.)
- 6) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13)

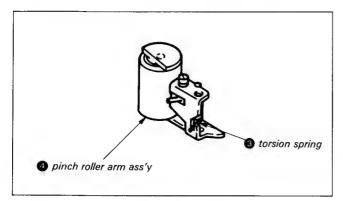


Fig. 7-19.

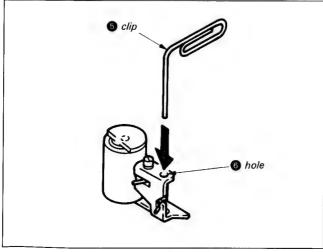


Fig. 7-20.

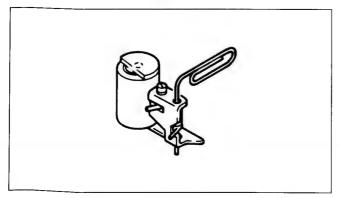


Fig. 7-21.

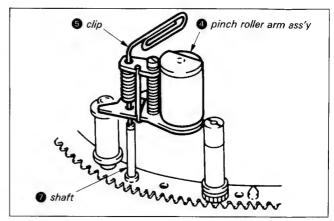


Fig. 7-22.

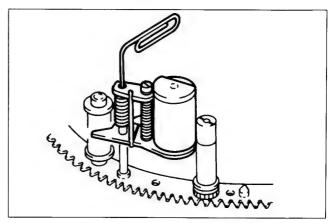


Fig. 7-23.

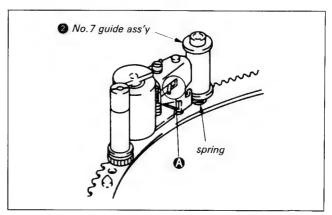


Fig. 7-24.

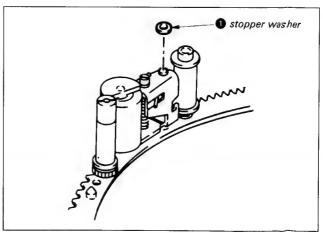


Fig. 7-25.

7-3-9. Slant Guide Assembly (See Fig. 7-26 ~ 28.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Remove screw 1 and E ring 2.
- 3) Remove the slant guide assembly 3. (See Fig. 7-26.)

2. Mounting

1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 7-27.)

2) Set the slant guide assembly guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 7-28.)

Note: At this time, confirm the engagement position of the slant guide drive gear and L slider assembly gear. (See Fig. 7-32.)

- 3) Mount the E ring 2 and tighten screw 1. (See Fig. 7-26.)
- 4) Put in the state in 7-3-7., 1. Removal, 3).
- 5) Mount the loading ring assembly according to 7-3-7., 2. Mounting (See Fig. 7-12, 7-13.)

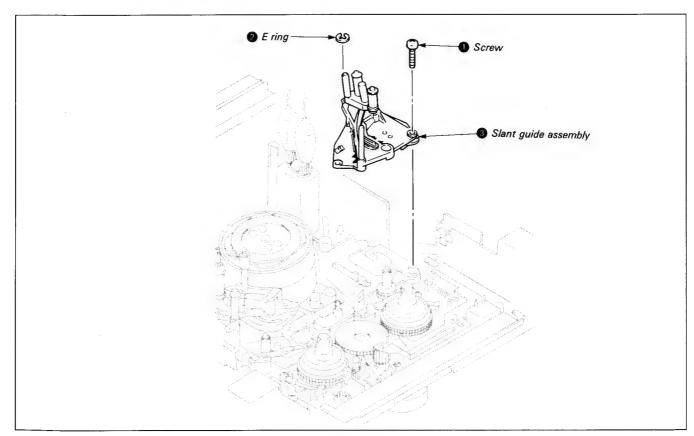


Fig. 7-26.

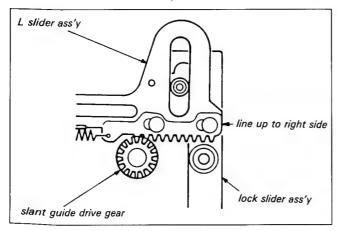


Fig. 7-27.

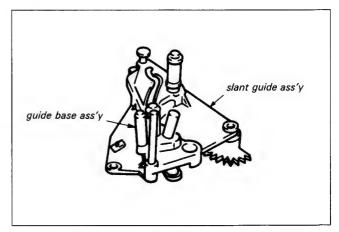


Fig. 7-28.

7-3-10. Entrance Guide (P) Assembly (No. 2 Guide Assembly) (See Fig. 7-29.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Turn the rotary upper drum counterclockwise and separate the head portion from the entrance guide (P) assembly 1.
- 3) Remove the two screws 2.
- 4) Remove No. 3 guide nut 3, and remove guide flange 1, guide 5 and compression spring 6.
- 5) Remove the entrance guide assembly 1.

2. Mounting

- 1) Engage the entrance guide (P) assembly and L slider assembly so that the part without teeth (a) on the bottom of the entrance guide (P) assembly and the part without teeth (b) on the L slider assembly match.
- 2) Mount the compression spring 6, guide 5 and guide flange 6 in that order, then temporarily tighten the guide nut 3.
- 3) Tighten the two screws 2.
- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

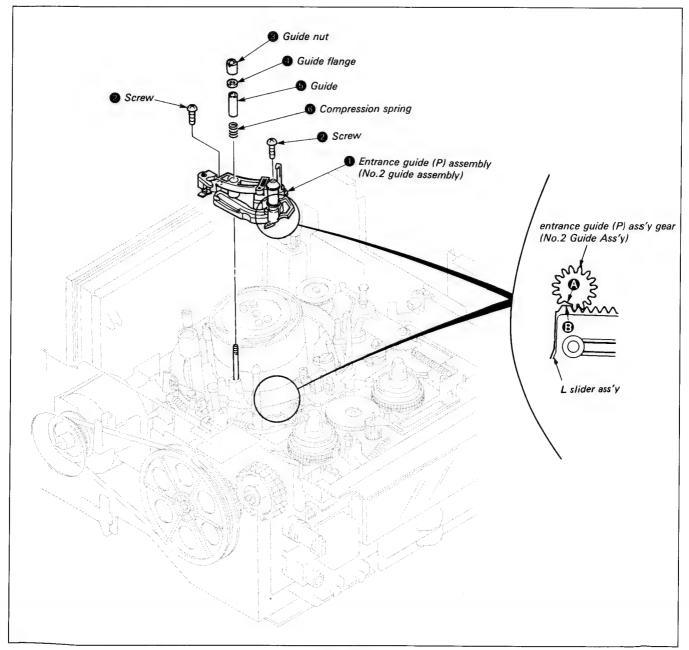


Fig. 7-29.

7-3-11. L Slider Assembly (See Fig. 7-30. ~32.)

1. Removal

- Remove the slant guide assembly according to 7-3-9., 1.
 Removal.
- 2) Remove the entrance guide (P) assembly according to 7-3-10., 1. Removal.
- 3) Set to DRUM START mode.
- 4) Remove slant guide drive gear 1.
- 5) Remove the tension regulator load arm assembly 2 pin from the cam groove of the tension regulator arm assembly. (Refer to 7-3-4. Tention Regulator Arm Assembly.)
- 6) Remove the two stopper washers 3.
- 7) Remove the L slider assembly 6 while pushing the RL arm assembly protrusion 4 in the direction of arrow.
- 8) Remove the stopper washer 6 and the tension regulator load arm assembly 2.

- 1) Lubricate the portions indicated in Fig. 7-31.
- 2) Mount the tension regulator load arm assembly 2 and the stopper washer 6.
- 3) Mount the L slider assembly 5 while pushing the RL arm assembly protrusion 4 in the direction of arrow.
- 4) Put the tension regulator load arm assembly 2 pin into the M slider groove. (Refer to 7-3-15. M slider)
- 5) Mount the two stopper washers 3.
- 6) Refer to 3-4, 2. Mounting, 2), and place the tension regulator load arm assembly 2 pin in the tension regulator arm assembly cam groove.
- 7) Operate the mode selector, and match up the right edge of the L slider assembly and the right edge of the lock slider assembly. (Refer to 7-3-9, 2. Mounting, 1)
- 8) Engage the slant guide drive gear so that the notch is 1 tooth away from the L slider assembly left side tooth. (See Fig. 7-32.)
- 9) Mount the entrance guide (P) assembly according to 7-3-10., 2. Mounting.
- 10) Mount the slant guide assembly according to 7-3-9., 2. Mounting.

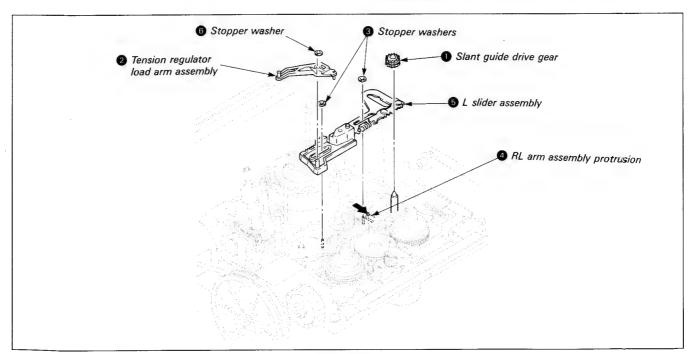


Fig. 7-30.

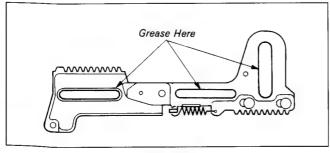


Fig. 7-31.

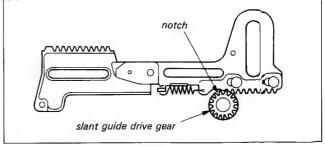


Fig. 7-32.

7-3-12. L-SW Assembly (See Fig. 7-33~35.)

1. Removal

- Remove the L slider assembly according to 7-3-11., 1. Removal.
- 2) Remove lock slider retainer 1.
- 3) Remove screw 2 and lock slider A 3.
- 4) Remove stopper washer 4 and torsion spring 5.
- 5) Remove drive changer assembly 6.
- 6) Remove connector 7.
- 7) Remove the two screws 8 and the L-SW assembly 9.

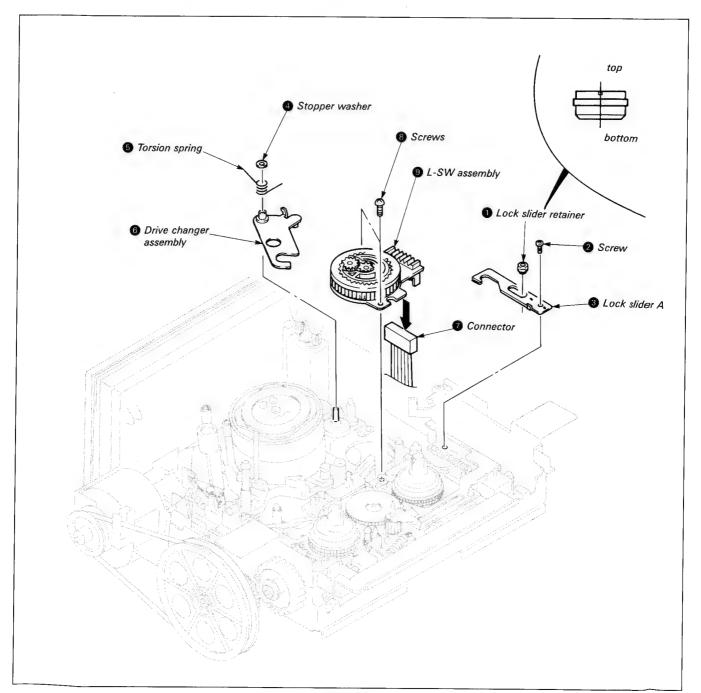


Fig. 7-33.

- 1) Place a half drop of oil on the L-SW assembly (9) spindle (planetary gear).
- Mount L-SW assembly and tighten with the two screws
 .
- 3) Connect connector 7.
- 4) Operate the mode selector and check that the L-SW assembly 9 rotates.
- 5) Place a half drop of oil on spindle .
- 6) Grease the drive change assembly 6 as shown in Fig. 7-34.
- 7) Mount the drive changer assembly 6.
- 8) Mount the torsion spring 6 and the stopper washer 4.
- Operate the mode selector and check that the L-SW assembly 9 rotates.
- 10) Mount lock slider A 3 and tighten screw 2.
- 11) Mount lock slider retainer 1.
- Operate the mode selector and set to the position in Fig. 7-35.
- 13) Mount the L slider assembly according to 7-3-11., 2, Mounting.

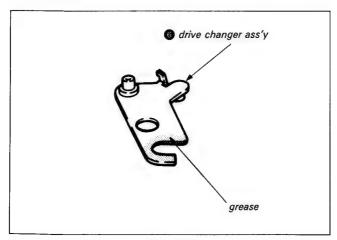


Fig. 7-34.

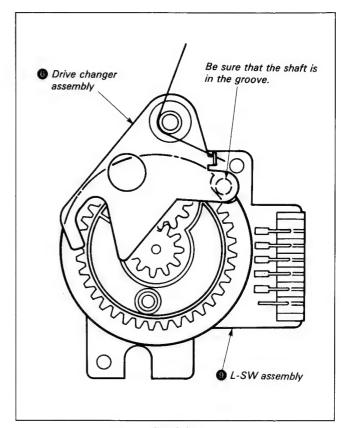


Fig. 7-35.

7-3-13. Plunger Solenoid (See Fig. 7-36.)

1. Removal

- 1) Open the SP-2 board according to Section 2, 2-6. and remove connector CN018 (white) 3P.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.
- 3) Remove tension spring 1.
- 4) Remove the two stopper washers 2.
- 5) Remove screw 3 and the lock slider B assembly 1.
- 6) Remove the two screws **5** and the plunger solenoid **6**. (At this time, be careful not to scratch the T reel assembly with the screwdriver, and do not touch it.)

- 1) Insert the plunger solenoid pin 2 into the P arm hole 3 and mount with the two screws 5. (Again, be careful not to scratch or touch the T reel assembly.)
- 2) Mount lock slider B assembly **1** and tighten screw **3**.
- 3) Mount the two stopper washers 2.
- 4) Hook on the tension spring 1.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.
- 6) Connect the CN018 connector (white) to the SP-2 board.
- 7) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

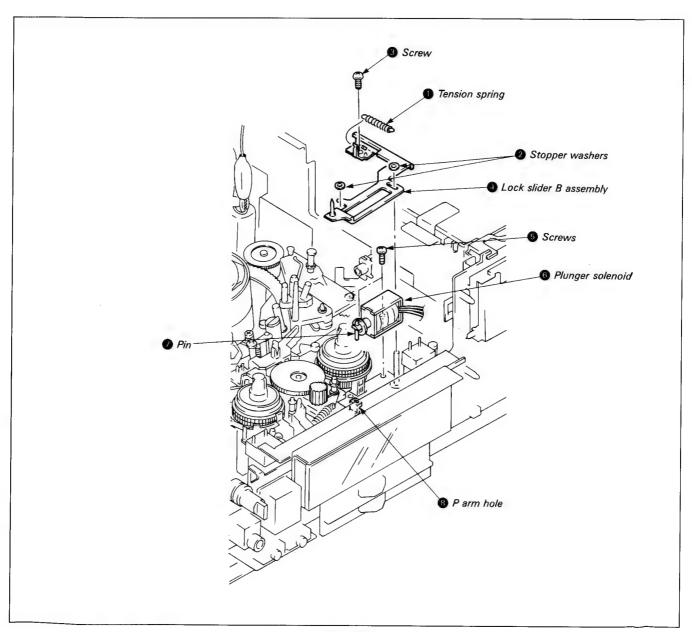


Fig. 7-36.

7-3-14. M-SW Assembly (See Fig. 7-37~39)

1. Removal

- 1) Remove the T reel assembly according to 7-3-2. (See Fig. 7-7.)
- 2) Remove stopper washer 1 and the drive gear (B) assembly 2.
- 3) Remove the LD-1 board 3. (See Fig. 7-37.)
- 4) Remove lock slider B assembly according to 7-3-13., 1. Removal, 3), 4) and 5).
- 5) Remove tension spring 4 and B release arm 6.
- 6) Check EJECT mode.
- 7) Remove stopper washer 6 and the mode output gear 7.
- 8) Remove screw 8 and the push switch 9.
- 9) Remove connector 10.
- 10) Remove the three screws ①, the control motor cover ② and the M-SW assembly ③.
- 11) Remove solder (A) and remove the DC motor (B).

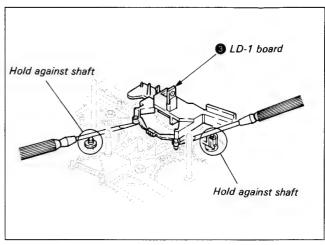


Fig. 7-37.

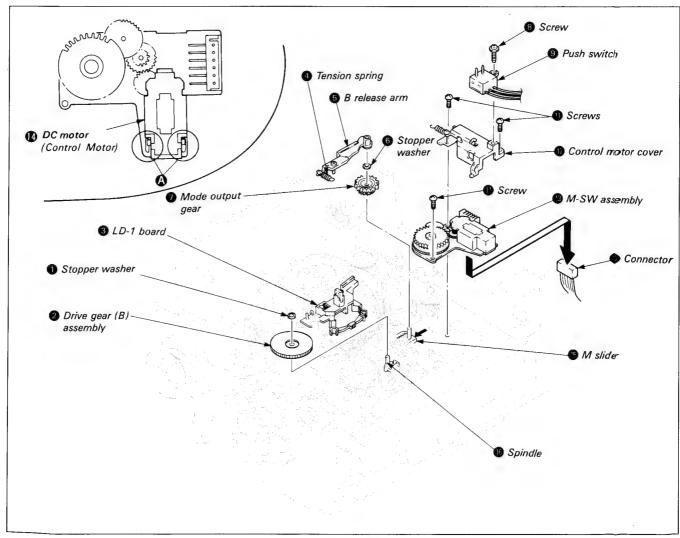


Fig. 7-38.

- 1) Solder the DC motor (Control Motor) 1.
- 2) Mount the M-SW assembly (1) and the control motor cover (1), and tighten the three screws (1).
- 3) Connect connector 10.
- 4) Mount push switch 9 and tighten screw 8.
- 5) Check EJECT mode.
- 6) Check that M slider 18 is moved fully in the direction of arrow 3.
- 7) Place a half drop of oil on spindle **10**. (See Fig. 7-38.)
- 8) Mount the mode output gear **7** so that the positioning holes are lined up. (See Fig. 7-39.)

- 9) Mount stopper washer 6.
- 10) Set to LOADING/UNLOADING mode.
- 11) Mount B release arm 6 and tension spring 4.
- 12) Mount the lock slider B assembly according to 7-3-13., 2. Mounting, 2), 3) and 4).
- 13) Mount the LD-1 board 3.
- 14) Mount drive gear B assembly 2 and stopper washer 1.
- 15) Mount the T reel assembly according to 7-3-2., Mounting.

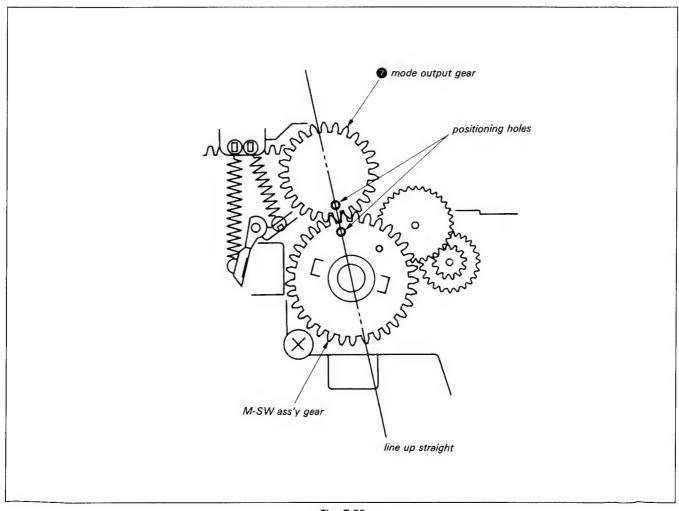


Fig. 7-39.

7-3-15. M Slider (See Fig. 7-40 ~43.)

1. Removal

- 1) Remove the pinch press arm assembly according to 7-3-3., 1. Removal. (See Fig. 7-8.)
- 2) Remove the tension regulator arm assembly according to 7-3-4., 1. Removal. (See Fig. 7-9.)
- 3) Remove the tension regulator band assembly according to 7-3-5., 1. Removal. (See Fig. 7-10.)
- 4) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 5) Perform 7-3-14., 1. Removal, Steps 1)~5). (See Fig. 7-37, 7-38.)
- 6) Remove the tension regulator load arm assembly according to 7-3-11., 1. Removal, 8). (See Fig. 7-30.)
- 7) Remove tension spring 1.
- 8) Remove the two stopper washers 2 and remove the S main brake assembly 3 and T main brake assembly 4.
- 9) Set to LOADING TOP, LOADING/UNLOADING mode.

- 10) Remove the screw 5 and the drive assembly 6.
- 11) Perform 7-3-14., 1. Removal, steps 6) and 7).
- 12) Remove the two tension springs .
- 13) Remove REW brake assembly 8.
- 14) Remove stopper washer 9 and B release slider 6.
- 15) Remove stopper washer **1** and ring lock spring **1** and RL arm **1**.
- 16) Move the M slider **16** to the right (leave about 5 mm at the left.)
- 17) Remove the E ring (1) and the pinch press lever assembly (1).
- 18) Remove spring 10 and the hard brake (S) 18.
- 19) Remove stopper washer (19), push the mode arm (19) in the direction of arrow, and lift up the left side of the M slider (19) to remove.

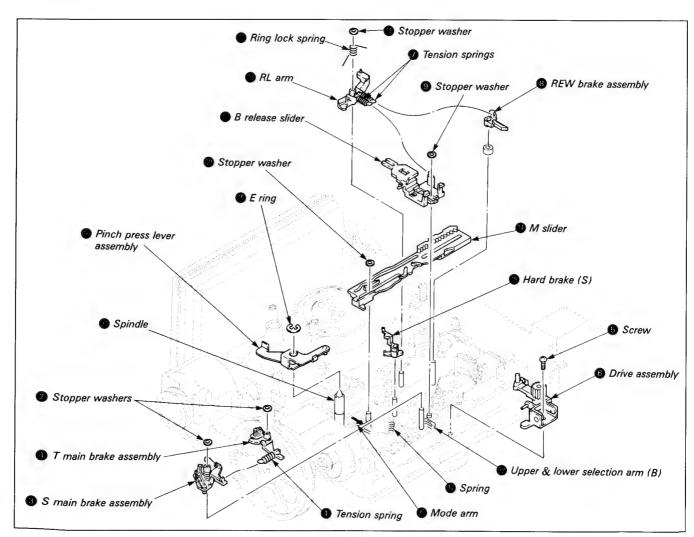


Fig. 7-40.

2. Mounting

- 1) Apply grease. (See Fig. 7-41.)
- 2) Push mode arm in the direction of arrow, and mount the M slider, noticing the positioning of the other parts in Fig. 7-42. and mount the stopper washer.
- 3) Mount hard brake (S) @ and spring .
- 4) Apply grease. (See Fig. 7-43.)
- 5) Apply a half drop of oil from the spindle groove to the bottom, mount the pinch press lever assembly and the E ring .
- 6) Mount RL arm 3, mount the ring lock spring 3 and the stopper washer 1.
- 7) Mount B release slider 1 and stopper washer 9.
- 8) Mount REW brake assembly 89.
- 9) Mount the two tension springs .

Note: Mount the springs as follows, being careful not to mix them up.

- B release slider spring: total diameter 2 mm, wire diameter 0.18 mm
- REW brake assembly spring: total diameter 1.6 mm, wire diameter 0.12 mm
- 10) Push the M slider all the way to the left.
- 11) Perform 7-3-14., 2. Mounting, steps 7), 8) and 9).
- 12) Set to LOADING/UNLOADING mode.
- 13) Insert the drive assembly 6 horizontal shaft into the upper & lower selection arm (B) 6 groove, and mount with the screw 6.
- 14) Mount T main brake assembly **1** and S main brake assembly **3**. Mount the two stopper washers **2** and the tension spring **1**.
- 15) Mount the tension regulator load arm assembly according to 7-3-11., 2. Mounting, step 2).
- 16) Perform 7-3-14., 2. Mounting, steps 11) ~ 15).
- 17) Mount the loading ring assembly according to 7-3-7., 2. Mounting.
- 18) Mount the tension regulator band assembly according to 7-3-5., 2. Mounting.
- 19) Mount the tension regulator arm assembly according to 7-3-4., 2. Mounting.
- 20) Mount the pinch press arm assembly according to 7-3-3.,2. Mounting.

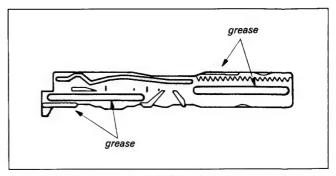


Fig. 7-41.

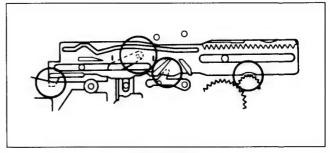


Fig. 7-42.

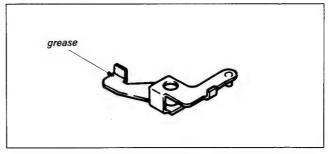


Fig. 7-43.

7-3-16. Capstan Motor (See Fig. 7-44.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove the connector (CN212, white, 11P) from SP-2 hoard
- 4) Remove the connector 2 (CN005, white, 4P) from RS-17 board.
- 5) Remove the two screws 3 and rotor retainer 4.
- Remove the two screws and remove the capstan motorin the direction of arrow.

- 1) Mount capstan motor 6 and tighten the two screws 5.
- 2) Mount the rotor retainer 4 and tighten the two screws 3.
- 3) Connect connectors 1 and 2.
- 4) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13.)
- 5) Mount the SP-2 board by performing the procedure in Section 2, 2-6. in reverse.

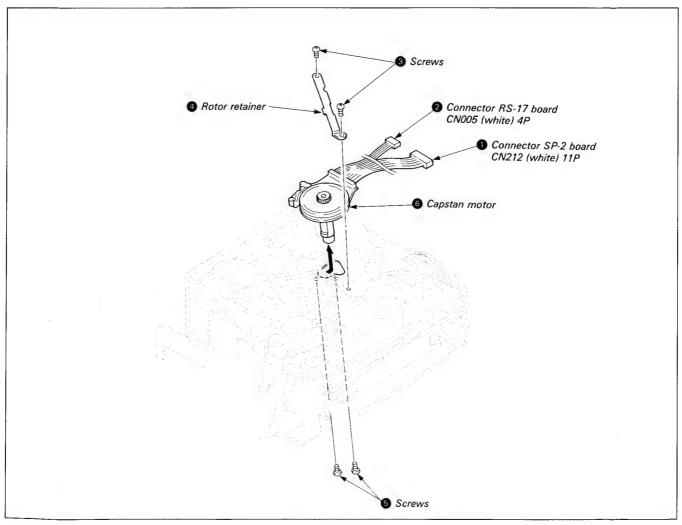


Fig. 7-44.

7-3-17. Rotary Upper Drum Replacement

1. Removal

- 1) Remove two hexagon socket screws (2×2.7) **1** and dismount the dynamic damper **2**. (See Fig. 7-45.)
- 2) Suction solder at all of the soldered eight positions **(a)**. Check that the printed wiring board and pins jutting out from below freely moove using tweezers, or other tool. (See Fig. 7-45.)
- 3) Remove the two hexagon socket screws (2×5) 3. (See Fig. 7-45.)
- 4) Mount the dismounting Jig (3) with the accessory screws (4) utilizing the screw holes in which the dynamic damper was mounted.

Drive the hexagon socket screw 6 into the jig 3 and remove the rotary upper drum 6. (See Fig. 7-46.)

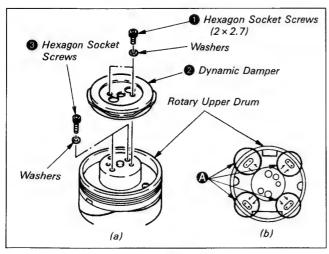


Fig. 7-45.

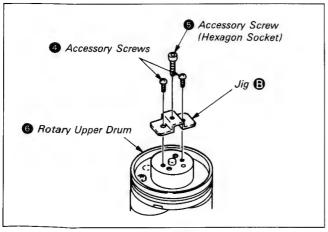


Fig. 7-46.

2. Mounting

Rotary Upper Drum Part No.
DGR-12-R A-7049-120-A

- Carefully clean the flange surfaces and planes of the rotary upper drum and visually check that no blemishes or flaws are left.
- 2) Insert Jig in the positioning hole so that the holes of the rotary upper drum and flange coincide. Lightly insert the rotary upper drum in the drum shaft while aligning their positions. (See Fig. 7-47.) (Check that pins are projecting above the holes on the printed circuit board of the rotary upper drum. When the pins are caught, correct using tweezers, etc.)
- 3) Remove Jig ♠, lightly push the rotary upper drum by hands. If the rotary upper drum does not go in to the bottom, alternately tighten the two hexagon socket screws (2 × 5) ❸ by hand and fix them temporarily. (See Fig. 7-45, 7-48.)
- 4) Reinsert the Jig in the positioning hole and check that the jig can be inserted smoothly. (When the jig cannot be inserted, loosen the two hexagon socket screws (2 × 5) ③ and slide it inserting a clock screw-driver in the hole.)
- 5) Tighten the two hexagon socket screws (2×5) 3.

Note: Do not tighten too strongly.

6) Solder the eight positions (A. (See Fig. 7-45.)

Note: Be careful not to flow solder below the printed wiring board.

7) Tighten the two hexagon socket screws (2×2.7) 1 reversing the screw removal procedure and remount the dynamic damper 2. (See Fig. 7-45.)

Note: Be careful not to tighten too strongly.

When mounting, be careful not to mix the hexagon socket screws (2×2.7) and hexagon socket screws (2×5) 3.

Note: After mounting, be sure to perform 7-4. Tape Path Adjustment.

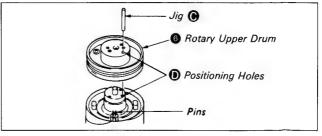


Fig. 7-47.

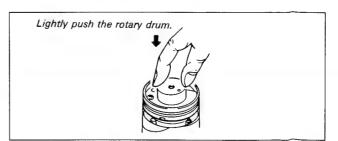


Fig. 7-48.

Notes on Drum Assembly and Rotary Upper Drum Mounting

- When mounting the drum assembly with a magnetized screwdriver, mount with the head tip in the position shown below to prevent it from being affected by the screwdriver.
- 2. Be sure to perform tape path adjustment after mounting.

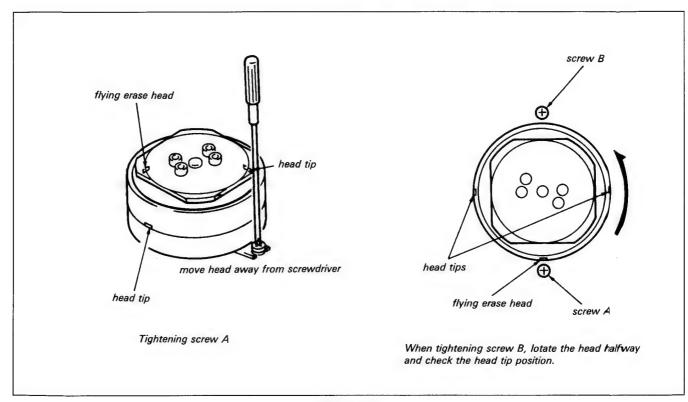


Fig. 7-49.

7-3-18. Replacement of Drum Assembly (See Fig. 7-50, 51)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove screw 1 and the shaft ground terminal 2. (See Fig. 7-50.)
- 4) Remove the three connectors 3.
- 5) Remove the two screws 4.
- 6) Remove the drum assembly **5**. (See Fig. 7-51.)

Note: At this time, be careful that the drum assembly does not hit No. 3 guide, etc.

2. Mounting

- 1) Mount drum assembly 5 and tighten the two screws 4.
- 2) Connect the three connectors 3.
- 3) Mount shaft ground terminal 2 and tighten screw 1.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

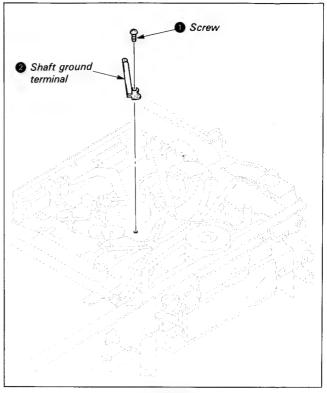


Fig. 7-50.

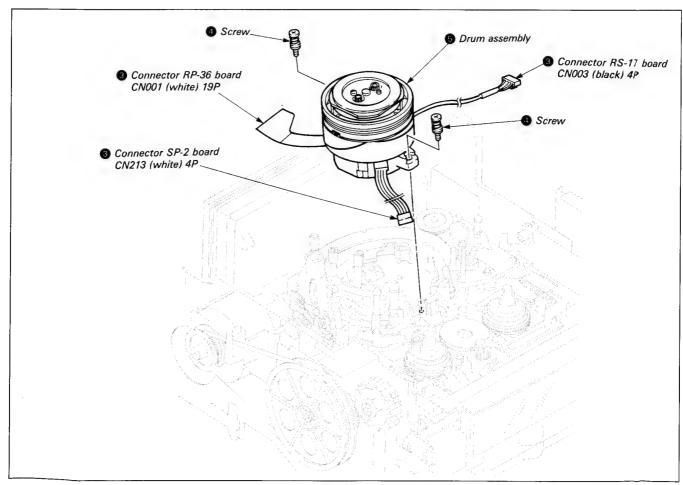


Fig. 7-51.

7-3-19. Adjustment After Replacement of No.3 Guide and No.4 Guide

For replacement of both No.3 and No.4 guides, line up the tape along the upper flange after replacing. (See Fig. 7-66.)

7-3-20. No.5 Guide Assembly (See Fig. 7-52.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Remove the three screws 1 and No.5 guide assembly.
- 3) Remove guide nut 2, compression spring 3 and No.5 guide roller assembly 4.

2. Mounting

- Insert compression spring 3 into No.5 guide roller assembly 4, engage the bottom section and tighten guide nut 2.
- 2) Mount No.5 guide assembly and tighten the three screws 1.
- 3) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

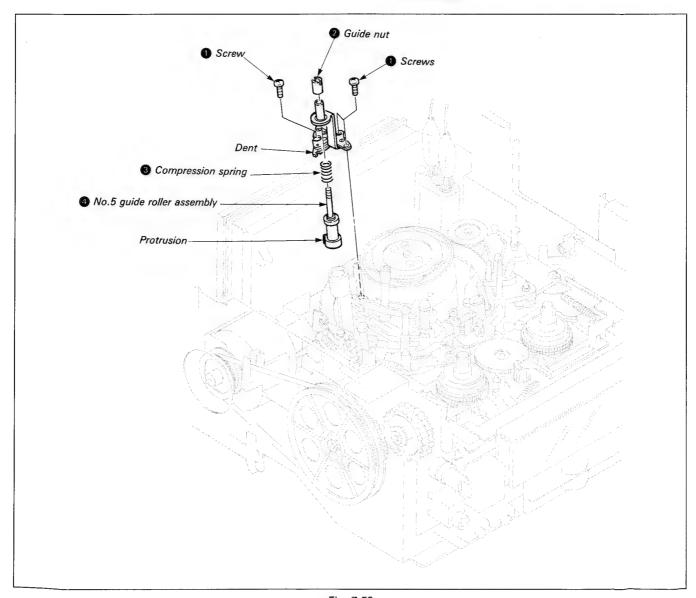


Fig. 7-52.

7-3-21. FWD Back Tension Adjustment (See Fig. 7-53.)

- 1) Remove the cassette compartment assembly according to Section 2, 2-14.
- 2) Remove the mechanism according to Section 2, 2-15.
- 3) Set to LOADING END FWD mode.
- 4) Loosen band adjustment plate 1 screw 2 and adjust as shown by arrow 4 so that the tension regulator arm assembly slit 3 and tension regulator arm assembly pin 4 are positioned as shown, and tighten screw 2.
- 5) Place tension measurement reel (Ref. No. J-7) 6 on the S reel table assembly 5 and line up with No.1 guide, No.2, No.3 guide and the drum.
- 6) Pull dial tension gauge (Ref. No. J-6) 7 in the direction of arrow ③ and hook tension spring ⑤ onto the tension regulator spring hook assembly ⑥ so that the value is 13.0±1g, as shown.

Value too large: arrow (direction Value too small: arrow (direction

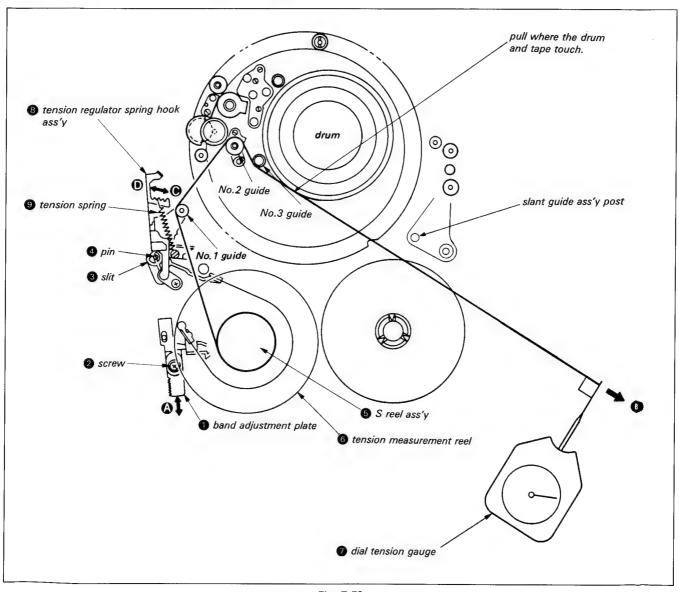


Fig. 7-53.

7-3-22. Replacement of Reel Motor (See Fig. 7-54.)

1. Removal

- 1) Open the SP-2 board according to item Section 2, 2-6.
- 2) Remove connector 1 from SP-2 board.
- 3) Remove the two screws 2 and reel motor bracket 3.
- 4) Remove the two screws and reel motor in the direction of arrow.

- 1) Mount the reel motor 5 to reel motor bracket 3 with two screws 6.
- 2) Mount the reel motor assembly and tighten with two screws 2.
- 3) Connect the connector 1 to SP-2 board.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

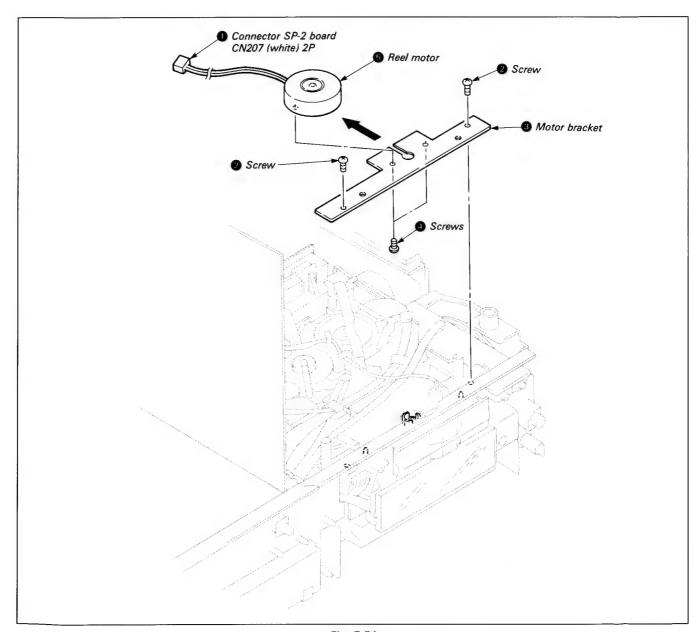


Fig. 7-54.

7-3-23. Check of S and T Main Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1. S Main Brake Torque (See Fig. 7-55, 7-56)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

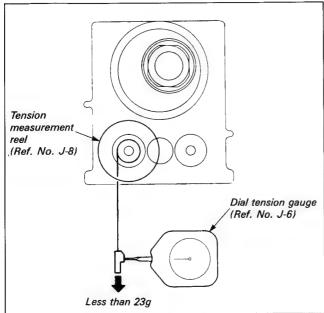


Fig. 7-55.

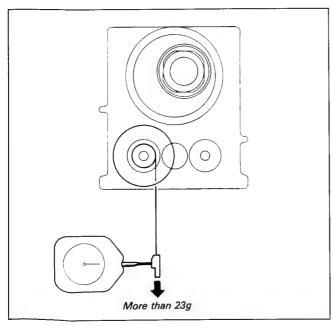


Fig. 7-56.

2. T Main Brake Torque (See Fig. 7-57, 7-58.)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

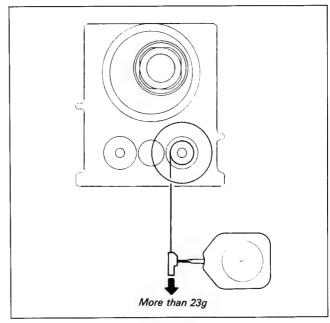


Fig. 7-57.

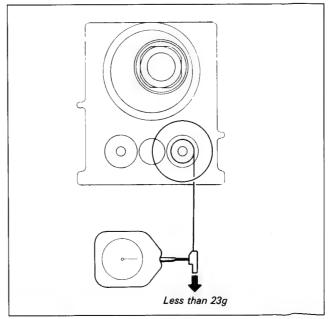


Fig. 7-58.

7-3-24. Check of S and T Soft Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- Remove the cassette compartment assembly according to Section 2, 2-14.

1 S Soft Brake Torque (See Fig. 7-59.)

- 1) Set to FF/REW mode.
- Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

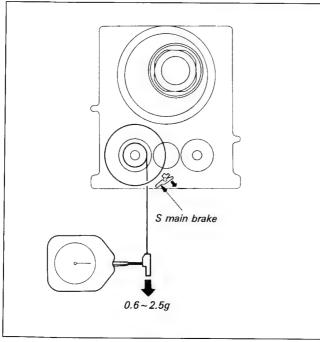


Fig. 7-59.

2. T Soft Brake Torque (See Fig. 7-60.)

- 1) Set to REV mode.
- Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

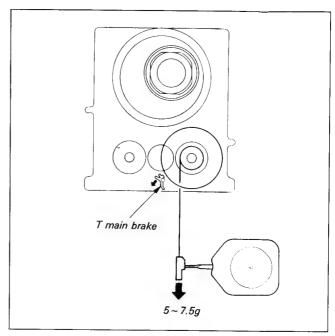


Fig. 7-60.

7-3-25. Check of REV and REW Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1. REV Brake Torque (See Fig. 7-61.)

- 1) Set to REV mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

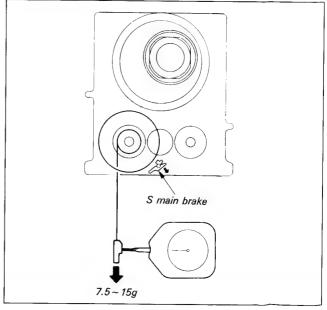


Fig. 7-61.

2. REW Brake Torque (See Fig. 7-62.)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are met.

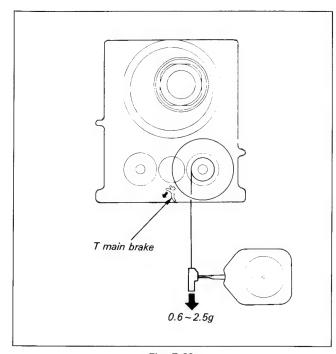


Fig. 7-62.

7-3-26. Check by FWD, RVS Take-up Torque Cassette

1) Insert the FWD, RVS take-up torque cassette (Ref. No. J-12).

7-4. TAPE PATH ADJUSTMENT

- 2) Set for playback mode and confirm that T reel table torque is $9.5 \sim 15.5$ g · cm.
- 3) Set for playback mode, and check that the S reel torque immediately after the REW button is pressed is 17-23 g·cm.
- 4) Replace the appropriate reel table if the above value are not satisfied.

Blade clock sc. TAPE RUNNING SYSTEM DIAGRAM (lock jig) Guide for adjusting entrance Screw for adjusting side upper running amount exit side upper running (number of peaks in RF output waveform) amount (number of peaks in RF output This guide does not control waveform) 0.5-3.5 waveform tape running much, but absorbs tape fluctuation at drum entrance portion Increase in number of peaks in RF output Decrease in number of waveform peaks in RF output waveform Decrease in number of peaks in RF output waveform Inward tilt Guide for controlling entrance side Preset completed tape running (RF output waveform (CAUTION) Tape should not touch upper and lower frange during free-running This guide does not control tape running much, but absorbs Allen wrench tape fluctuation at (lock jig) drum exit portion -3147-4. TAPE PATH ADJUSTMENT

ue

(Ref. No.

reel table

eel torque

7-23 g⋅cm.

value are

[REGARDING TRACK SHIFT AND MONITOR JIG]

The video 8 system employs a high precision tracking ATF (auto track finding) and instantaneously controls the tape running speed with the 4 kinds pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracking has become possible.

However, on the other hand, there has been difficulty in adjusting the tape path system with the ATF method. It was due to the fact that complete adjustment had been impossible to be performed because even when the tracing of the head had been a slightly off course, the ATF would perform correction automatically.

Because of this, adjustment is carried out to the tape path system by using the track shift & monitor jig (Ref. No. J-6080-851-A). As the track shift and monitor jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

Perform this adjustment after the electrical adjustment of Section 8 has been completed.

7-4-1. Connection with Track Shift and Monitor Jig

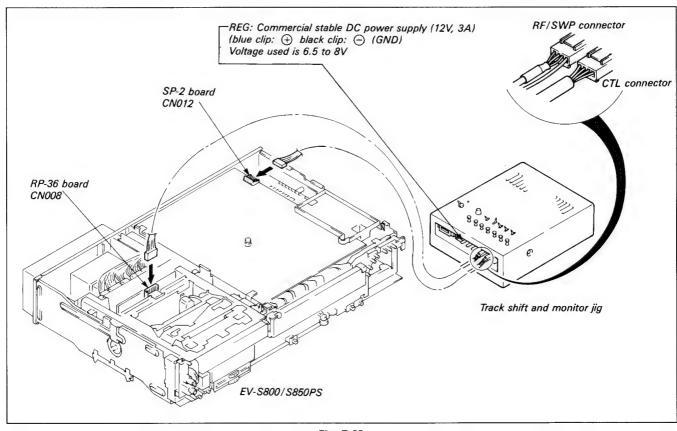


Fig. 7-63.

[Track Shift and Monitor Jig Power Supply]

The track shift & monitor jig has three types of connectors for external power supply, and the following three types of power supply can be used.

Connector Name	Power Supply				
SYSTEM CONN	Connect modified CCD-V8E/UB AC adapter AC-V8 E/UB. (Refer to the track shift and monitor jig instruction manual for the modification procedure.)				
AC ADP	Betamovie AC adapter AC-M100E/UB is connected.				
REG	Connect commercially sold DC stable power supply of more than 12V3A and use at 6.5~8V. Be sure to make correct \bigoplus and \bigoplus connections.				

- Two or more types of power supply can not be used at the same time.
- Use the connector supplied with the track shift & monitor jig when connecting.
- Power supplies or voltages other than those given above should not be used.
- When using the modified AC-V8E/UB, the circuit power supply is cut off about 10 seconds after the AC-V8E/UB power switch is turned off.
- Power is not supplied to itself, so be sure to supply AC power to it at the same time.

[Connector Connection]

Connect the track shift & monitor jig as shown in Fig. 7-63. Connect RF/SWP connector to RP-36 board CN008, and the CTL conector to SP-2 board CN012.

[Switch Settings]

SEL switch:

Set to ON when doing track shift. When

OFF, control is from side.

PATTERN switch:

Set to EV side.

ATF LOCK:

Set to OFF.

Other switches are not used during adjustment.

7-4-2. Preparation for Adjustment

- Perform cleaning of the tape running surface (the individual tape guides, drum, capstan shaft and pinch roller).
- 2) Connection of oscilloscope1ch: CH2 pin (RF signal)2ch: RF SWP pin (RF SWP signal)(Fig. 4-1)
- 3) Set the SEL switch of the track shift & monitor jig to OFF, then playback the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. (a) in 7-64.). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
 - * In case the RF waveform on the entrance side is not flat (Fig. (b) in 7-64.) ... Perform the adjustment in Item 7-4-3. Entrance side adjustment.
 - * In case RF waveform on the exit side is not flat (Fig. © in 7-64.) . . . Perform the adjustment in Item 7-4-4, Exit Side Adjustment.

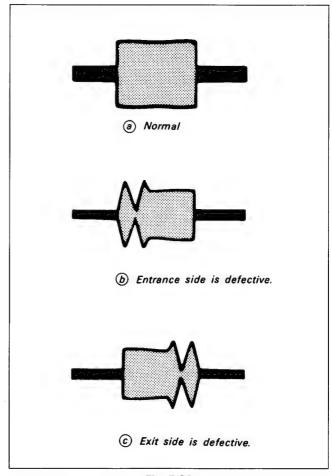


Fig. 7-64.

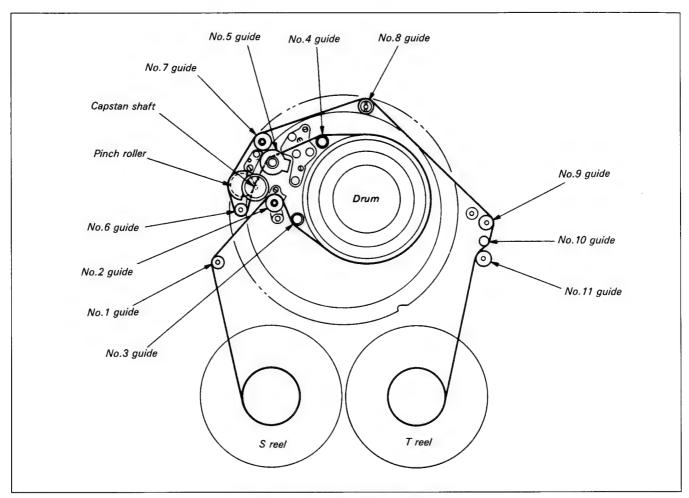


Fig. 7-65. Tape guide arrangement diagram

7-4-3. Entrance Side Adjustment

1) Playback the tracking alignment tape (WR5-1C) and loosen No.2 guide lock screw 1, and rotate No.2 and No.3 guides counterclockwise to free tape running on the entrance side. (See Fig. 7-66.)

Note: Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is contacting neither top nor bottom flanges at this point. If No.2 guide is loosened excessively, the tape contacts the bottom flange and the RF waveform on the entrance side ceases to be the original free waveform.

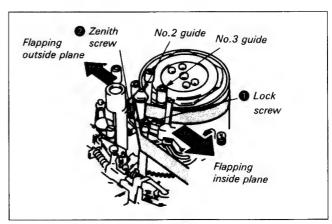


Fig. 7-66.

2) Confirm that RF waveform on the entrance side has 0.5 to 3.5 peaks in this condition. If not, adjust as follows. (See Fig. 7-67.)

[less the 0.5 peak]

Adjust the No.2 guide zenith screw 2 by turning it counterclockwise 90° at a time. (See Fig. 7-66.)

[more than 3.5 peaks]

Adjust the height adjustment screw of No.1 guide (tension regulator assembly) by turning it counterclockwise 90° at a time. (See Fig. 7-68.)

 Slowly rotate the No.2 guide clockwise to make the entrance side waveform approximately flat. (See Fig. 7-69)

Note: Do not rotate No.2 guide excessively.

- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-70.)
- 5) Turn No.2 guide so that the entrance side waveform flattens slightly. (See Fig. 7-71.)
- 6) Flatten the waveform with No.3 guide. (See Fig. 7-72.)
- 7) Tighten No.2 lock screw 1. (See Fig. 7-66.)

Note: Be sure to perform checking in accordance with 7-4-5. after making the adjustment.

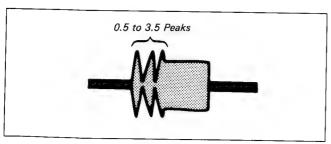


Fig. 7-67.

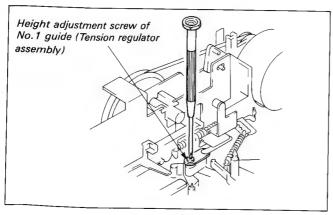


Fig. 7-68.

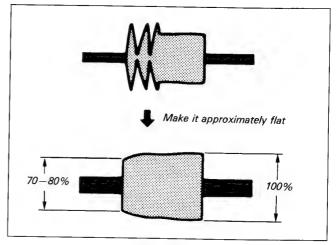


Fig. 7-69.

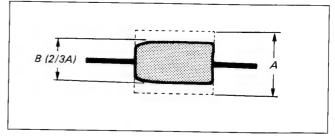


Fig. 7-70.

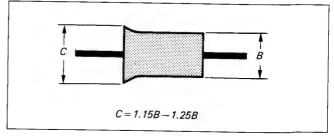


Fig. 7-71.

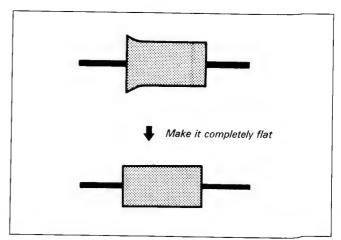


Fig. 7-72.

7-4-4. Exit Side Adjustment

- 1) Playback the alignment tape (WR5-1C) for tracking. Rotate No.4 guide counterclockwise and No.5 guide colockwise in order to make the tape running on the exit side free. (See Fig. 7-73.)
 - Note: If screw lock is stuck to the No.5 guide nut, it may prevent the nut from rotating. Rotate the guide after immersing the nut thread into alcohol and to dissolve the screw lock agent.
 - Check that the tape is not contacting the top and buttom of flanges of No.5 guide during free tape running.
- 2) Check that the RF waveform on the exit side has 1.5 to 3.5 peaks. If not, readjust as follows: (See Fig. 7-74.)

If off standard

- i) Rotate the lock screw 1 counterclockwise to loosen.
- ii) Slowly rotate the zenith screw 2 45° at a time and wait until the RF waveform varies.
- iii) Rotate the lock screw ① clockwise to tighten. (See Fig. 7-73.)
- **Note:** The waveform varies if the lock screw is tightened too strongly. Tighten moderately.
 - Never rotate the azimuth screw of No.5 guide.
- 3) Rotate No.5 guide counterclockwise to make the RF waveform on the exit side approximately flat. (See Fig. 7-75.)
 - Note: The waveform reaction is slow against nut rotation. Rotate the nut after the waveform variations are stabilized.
- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3 (See Fig. 7-76.)
- 5) Turn No.5 guide so that the exit side waveform flats slightly. (See Fig. 7-77.)
- 6) Turn No.4 guide so that waveform flat. (See Fig. 7-78.)

 Note: Be sure to perform checking in accordance with
 7-4-5. after making the adjustment.

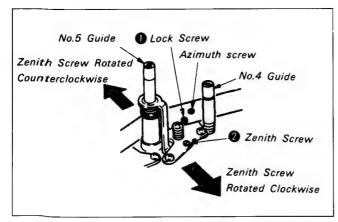


Fig. 7-73.

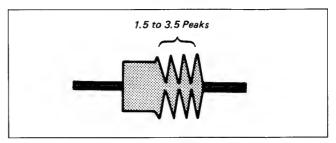


Fig. 7-74.

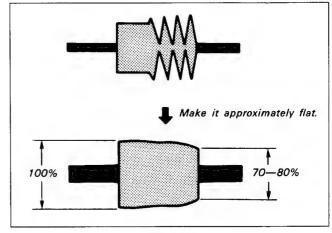


Fig. 7-75.

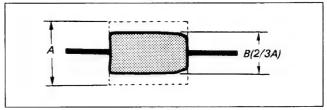


Fig. 7-76.

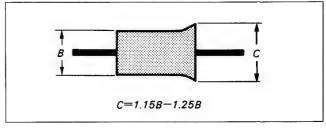


Fig. 7-77.

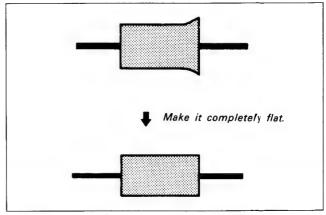


Fig. 7-78.

7-4-5. Checking After Adjustment

1. Tracking check

- 1) Playback the alignment tape (WR5-1C) for tracking.
- Set the SEL switch of the track shift & monitor jig to ON, and turn track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-79.)

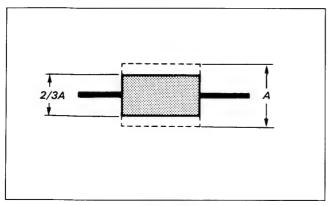


Fig. 7-79.

3) Confirm that the RF waveform amplitude minimum value (E min) at this time is more that 80% of maximum value (E max.). (See Fig. 7-80.)

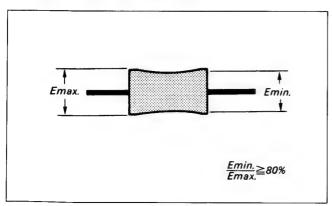


Fig. 7-80.

4) Check that the fluctuation amount of RF waveform entrance and exit sides both is as shown in Fig. 7-81.

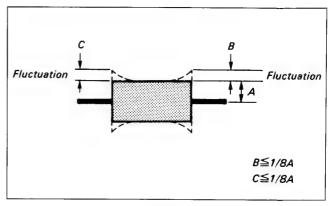


Fig. 7-81.

- Set the SEL switch of the track shift & monitor jig to OFF
- 6) Set up the REV mode and confirm that the waveform noise pitches are uniform. If not adjust as follows. (See Fig. 7-82.)

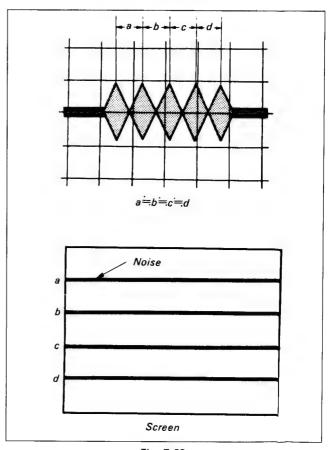


Fig. 7-82.

[Narrow noise pitch on entrance side (upper screen)] (See Fig. 7-83.)

Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No.2 and 3 guides as in 7-4-3. Entrance Side Adjustment.

Waveform is flat:

Check again by performing No.1 guide height and No.2 guide zenith adjustment according to 7-4-3. Entrance Side Adjustment.

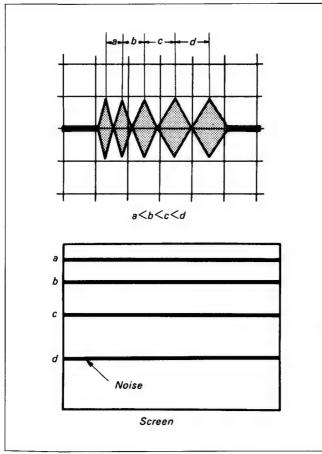


Fig. 7-83.

[Narrow noise pitch on exit side (lower screen)] (See Fig. 7-84.)

Set up the PLAYBACK mode and adjust No.4 and 5 guide heights in accordance with 7-4-4. Exit Side Adjustment.

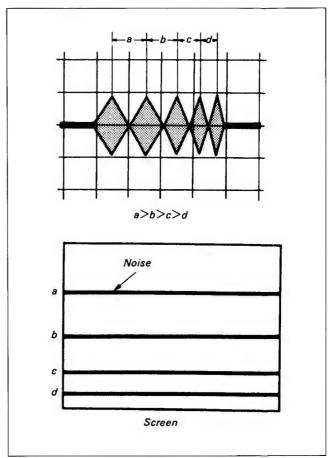


Fig. 7-84

[Wide noise pitch on exit side (lower screen)] (See Fig. 7-85.)

Set up the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat:

Adjust height of No.4 and 5 guides in accordance with 7-4-4. Exit Side Adjustment.

Waveform is flat:

Rotate the guide lower toothed wheel counterclockwise with No.6 guide lock jig (Ref. No. J-11) to loosen the toothed wheel. Rotate No.6 guide counterclockwise 45° to tighten the lower toothed wheel. Confirm the RF waveform of the REV mode again. (See Fig. 7-86.)

Note: Wrinkles may be caused in Part between the capstan spindle and No.5 guide, if No.6 guide is raised excessively. Confirm that no wrinkles have been caused. (See Fig. 7-87.)

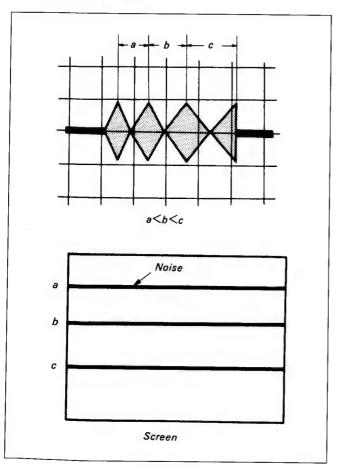


Fig. 7-85.

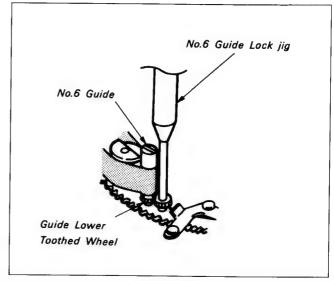


Fig. 7-86.

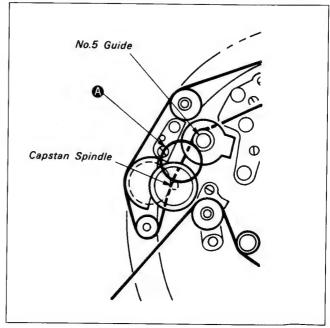


Fig. 7-87.

2. Checking rising edge

 Check that the RF waveform rises horizontally during playback after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise emits from the exit side (lower screen) with rising during playback after finishing loading] (See Fig. 7-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as instructed in 7-3-21. FWD Back Tension Adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise 5° at a time and adjust after rechecking the rising edge. (See Fig. 7-89.)

[Noise emits from the exit side (lower screen) with rising during playback after REV] (See Fig. 7-88.)

Loosen the guide lower toothed wheel of No.6 guide using No.6 guide lock jig, rotate No.6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part of Fig. 7-87, if No.6 guide is raised excessively at this time, between the capstan spindle and No.5 guide, so check that no wrinkles are caused.

[Noise emits from the exit side (lower screen) with rising during playing back after FF]

(See Fig. 7-88.)

Confirm that the FWD back tension is not too low.

If too low:

Readjust as required in 7-3-21. FWD Back Tension Adjustment.

If normal:

Remote the azimuth screw of the pinch roller clockwise by 5° at a time and adjust after checking the rising edge. (See Fig. 7-89.)

Note: Be sure to check play rising after finishing loading in case an adjustment is made.

3. Tape running check

In PLAYBACK and REV modes, there should be no spaces and curl should be within 0.3 mm for No.1, 2 and 5 guides at No.1 — No.6 guide flanges (Fig. 7-90.). Check also that there is no space or curl at No.3, 4 and 6 guides.

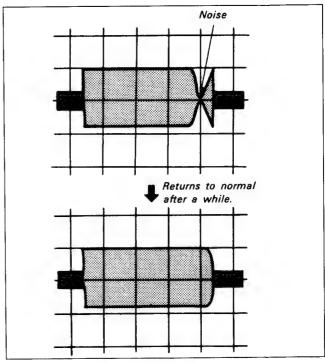


Fig. 7-88.

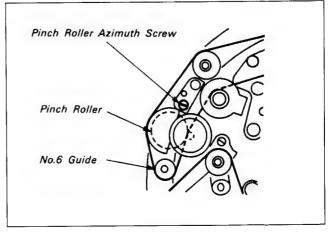


Fig. 7-89.

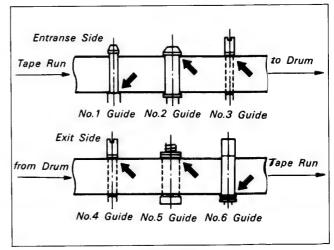


Fig. 7-90.

SECTION 8 ELECTRICAL ADJUSTMENT

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 348.

The following measuring instruments are needed for electrical adjustment.

[Equipment]

- 1) Monitor TV
- 2) Oscilloscope, dual trace, band 10 MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
- 3) Frequency counter
- 4) PAL pattern generator
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Alignment tapes

Tracking adjustment (WR5-1C)

Parts code: 8-967-995-06

Video frequency response adjustment (WR5-2C)

Parts code: 8-967-995-16

Operation check (WR5-3CL)

Parts code: 8-967-995-36

Operation check (WR5-3CSP)

Parts code: 8-967-995-27

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

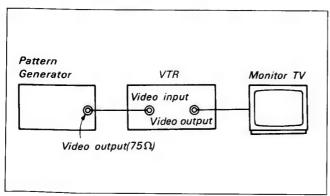


Fig. 8-1.

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal is 0.30:0.66. Fig. 8-2. shows video signals (colour bars) used in making the electrical adjustment.

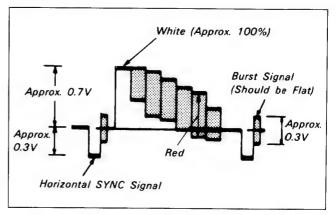


Fig. 8-2.

[Alignment tape]

Tape	Content	Use
Tracking (WR5-1C)	1. Recording area: PCM — video 2. Recording content: CH2: 1 MHz linearity adjustment signal (CH1: 9 MHz)	Drum linearity adjustment
Video Frequency Response (WR5-2C)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10 MHz 3. Marker: 1, 3.58, 5.5 and 7 MHz	Frequency response adjustment
Operation Check SP mode WR5-3CSP LP mode (WR5-3CL)	1. Recording area: Video, PCM 2. Recording content: Video area Video signals Colour bars 10 sec Monoscope 8 sec (Colour bars) Burst Signal O.7V O.3V Horizontal SYNC Signal Audio signals (AFM) 400 Hz 60% modulation PCM area (WR5-3CSP only) Audio signals (PCM) 1kHz 0dBs 10sec 20Hz -6dBs 2sec 400Hz -6dBs 4sec 14kHz -0.7dBs 2sec 1kHz -0.7dBs 2sec 1terative	Operation check

Input/output level and impedance

Video input Phono jack

Input signals: 1 Vp-p, 75Ω unbalanced, sync negative

Video output Phono jack

Output signals: 1 Vp-p, 75Ω unbalanced, sync negative

Audio input Phono jack

Input level: -10dBs (0dBs = 0.775 Vrms)

Input impedance: $47k\Omega$ or higher

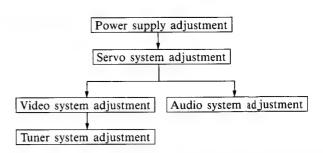
Audio output Phono jack

Regulated output: -10 dBs (at load impedance $47k\Omega$)

Load impedance: More than $10k\Omega$

Adjustment Procedure

Adjust in the following sequence:



8-1. Power Supply Adjustment

8-1-1. Oscillation frequency adjustment (DR-35 board)

Mode	E-E
Measurement point	Q201 collector
Measurement equipment	Frequency counter
Adjustment element	RV201
Specified value	91 ± 2kHz

[Adjustment method]

1) Adjust with RV201 so that it becomes $91 \pm 2kHz$.

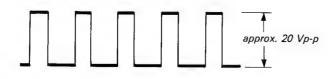


Fig. 8-3.

8-1-2. REG 5V adjustment (DR-35 board)

Mode	E-E
Measurement point	Pin 3 of CN201
Measurement equipment	Digital voltmeter
Adjustment element	RV202
Specified value	5.3 ± 0.1 Vdc

[Adjustment method]

1) Adjust with RV202 so that it becomes 5.3-0.1Vdc.

8-1-3. REG 12V adjustment (DR-35 board)

Mode	E-E
Measurement point	Pin ① of CN203
Measurement equipment	Digital voltmeter
Adjustment element	RV203
Specified value	12.3 ± 0.3 Vdc

[Adjustment method]

1) Adjust with RV203 so that it becomes 12.3 ± 0.3 Vdc.

8-1-4. Voltages Check (DR-35, DT-63 Boards)

Mode	E-E	
Measurement equipment	Digital voltmeter	
UNSW 5V Check		
Measurement point	Pin ② of CN203 on DR-35 board	
Specified value	5.4 ± 0.2 Vdc	
DRIVE 9V Check		
Measurement point	Pin 4 of CN202 on DR-35 board	
Specified value	$9.1 \pm 0.2 \text{Vdc}$	
UNSW 38V Check		
Measurement point	Pin ② of CN104 on DT-63 board	
Specified value	$36.5 \pm 0.8 \text{Vdc}$	
UNSW -30V Check		
Measurement point	Pin (4) of CN104 on DT-63 board	
Specified value	$-29\pm0.8\text{Vdc}$	
UNSW 9V Check		
Measurement point	Pin ① of CN105 on DT-63 board	
Specified value	8.8 ± 0.2Vdc	
UNSW -9V Check		
Measurement point	Pin ③ of CN105 on DT-63 board	
Specified value	$-8.8 \pm 0.2 \text{Vdc}$	
BACK UP 5V Check		
Measurement point	Pin ⑦ of CN106 on DT-63 board	
Specified value	$5.7 \pm 0.8 \text{Vdc}$	

[Confirmation method]

Check that each voltage satisfies the specified value.

8-2. SERVO SYSTEM ADJUSTMENT

8-2-1. Reel Bias Adjustment (SP-2 board)

Mode	REC (SP)
Signal	Arbitrary
Measurement point	+: TP210 (Pin ② of CN207) -: TP211 (Pin ① of CN207)
Measurement equipment	Digital voltmeter
Adjustment element	RV209
Specified value	1.00 - 0.05Vdc

[Adjustment method]

- 1) Set up the REC mode and wait for 5 seconds.
- 2) Adjust with RV209 so that the DC-voltage is 1.00 ± 0.05 Vdc.
- 3) Set up the FF mode.
- 4) Check that the DC-voltage is $2.25 \pm 0.1 \text{Vdc}$.

8-2-2. REC ATF Level Check (SP-2 board)

Mode	E-E
Signal	Arbitrary
Measurement point	TP235 (CN214 ⑤ PIN: REC ATF)
Measurement equipment	Oscilloscope
Specified value	500 ± 50mVp-p

[Confirmation method]

1) Check that the REC ATF level is $500 \pm 50 \text{mVp-p}$.

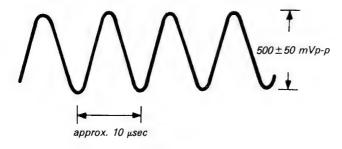


Fig. 8-4.

8-2-3. Drum Free Speed Adjustment (SP-2 Board)

Mode	REC
Signal	Arbitrary
Measurement point	TP213 (IC212 ¹ / ₄) PIN: ADE)
Measurement equipment	Digital voltmeter
Adjustment element	RV202
Specified value	1.9 ± 0.1 Vdc

[Adjustment method]

1) Adjust with RV202 so that it becomes 1.9±0.1Vdc.

8-2-4. Capstan Free Speed Adjustment (SP-2 Boards)

Mode	Playback
Signal	Arbitrary tape
Measurement point	TP202 (IC204 ⁽³⁾ PIN: CFG)
Measurement equipment	Frequency counter
Adjustment element	SP mode: RV206 LP mode: RV208
Specified value	SP mode: 1341±1Hz LP mode: 670±1Hz

[Connection]

1) Connect TP230 (Q704 emitter: PB ATF) and TP002 (GND) with a jumper wire.

[Adjustment method]

The adjustment element of LP mode is shown in parentheses [].

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Set up the playback mode.
- 3) Adjust with RV206 [RV208] so that it becomes 1341 ± 1 Hz [670 ± 1 Hz].

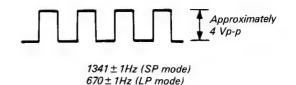


Fig. 8-5.

8-2-5. Switching Position Adjustment (SP-2 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	CH1: VIDEO OUT terminal CH2: TP207 (IC204 ② PIN: SV RF)
Measurement equipment	Oscilloscope
Adjustment element	RV201
Specified value	$6.5 \pm 0.3 \text{H} (416 \pm 20 \mu \text{sec})$

[Adjustment method]

1) Adjust with RV201 so that it becomes 6.5 ± 0.3 H $(416\pm20~\mu sec)$.

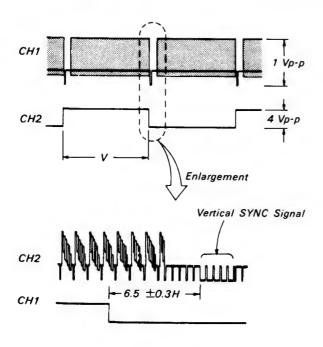


Fig. 8-6.

8-2-6. ATF BPF Balance Adjustment (SP-2 Board)

Mode	Playback
Signal	See Fig. 8-7
Measurement point	TP236 (IC703 9 PIN: ATF ER)
Measuring equipment	Oscilloscope.
Adjustment element	RV701
Specified value	Minimum level difference of the ATF ERROR signal.

[Connection 1]

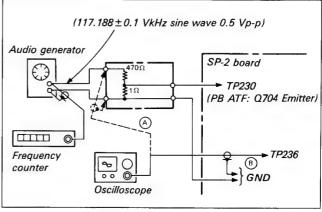


Fig. 8-7.

[Connection 2]

Connect Pin (5) of CN012 (P SEL 1) to Pin (1) of CN005 (REG 5V) with a jumper wire.

[Adjustment method]

- 1) Check the output level of the audio generator with an oscilloscope and adjust so that the sine wave output level becomes 0.5 Vp-p. (Fig. 8-7 (A))
- 2) Adjust the oscillation frequency of the audio generator so that reading of the frequency counter becomes 117.188 ± 0.1kHz.
- 3) Playback an arbitrary tape.
- 4) Connect an oscilloscope to TP236.
- 5) Adjust with RV701 to eliminate level difference of the ATF ERROR signal.

Eliminate level difference of these portion

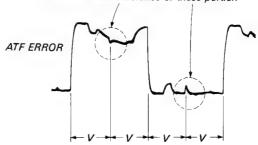


Fig. 8-8.

8-2-7. SLOW Tracking Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parenthess [].

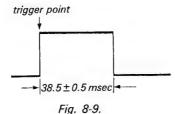
Mode	SLOW
Signal	SP [LP] mode recorded tape
Measurement point	TP232 (IC208 23 PIN: C. ON)
Measurement equipment	Oscilloscope •Trigger mode: NORMAL •Trigger slope: +
Adjustment element	SLOW/STILL ADJ buttons in the tuner preset compartment (S004, S005 on PR-13 board)
Specified value	$38.5 \pm 0.5 \text{ msec}$

[Connection]

Connect TP001 (IC001 39 PIN: EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

- 1) Playback the SP [LP] recorded tape.
- 2) Adjust to 38.5 ± 0.5 msec with the SLOW/STILL ADJ buttons.



8-2-8. TRACKING Adjustment (SP-2 Board)

Mode	Playback
Signal	SP mode Self-recorded tape
Measurement point	CH1: Pin ③ of CN008 on RP-36 board (SP 1 CH) CH2: TP207 (Pin ① of IC204: SV RF)
Measurement equipment	Oscilloscope
Adjustment element	RV210
Specified value	Maximum SP 1 channel RF level

[Adjustment method]

1) Maximize the SP 1 channel RF level by turning RV210 slowly.

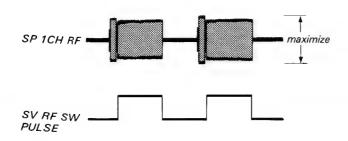


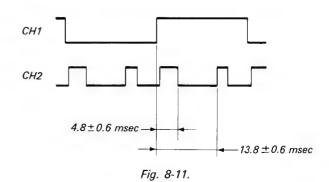
Fig. 8-10.

8-2-9. STILL Adjustment (SP-2 Board)

Mode	STILL
Signal	SP mode self-recorded tape
Measurement point	CH1: TP207 (Pin ②) of IC204: SV RF) CH2: TP228 (Pin ⑧ of IC703: ST ID)
Measurement equipment	Oscilloscope.
Adjustment element	RV203, RV204
Specified value	1. 4.8 ± 0.6 msec (RV203) 2. 13.8 ± 0.6 msec (RV204)

[Adjustment method]

- 1) Rotate the rotor of the capstan motor by your hand and stop it at the position that noise on the monitor screen is hidden into its upper or lower section.
- 2) Adjust to 4.8 ± 0.6 msec with RV203. (See Fig. 8-11.)
- 3) Adjust to 13.8 ± 0.6 msec with RV204. (See Fig. 8-11.)



8-2-10. FORWARD SLOW Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parentheses [].

Mode	FORWARD SLOW
Signal	SP [LP] mode self-recorded tape
Measurement point	Confirm with mornitor TV
Measurement equipment	screen picture
Adjustment element	RV205 [RV207]
Specified value	Be sure that there is no noise and no skew on the monitor TV screen.

[Adjustment method]

 Adjust with RV205 [RV207] so that noise on the monitor screen is hidden into its upper or lower section.

8-2-11. SLOW fн Adjustment (SP-2 Board)

1. fn Bias Adjustment

The adjustment element of LP mode is shown in parentheses [].

Mode	E-E
Signal	None
Measurement point	TP242 (Pin ⑦of IC219: FH BIAS)
Measurement equipment	Digital voltmeter
Adjustment element	RV216 [RV215]
Specified value	2.0±0.1Vdc

[Adjustment method]

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Adjust with RV216 [RV215] to 2.0 ± 0.1 Vdc.

8-2-12. SLOW fr Adjustment

The adjustment element of LP mode is shown in parentheses [].

Mode	FORWARD SLOW
Signal	SP [LP] mode self-recorded tape
Measurement point	Pin ③ of CN216 (COMP SYNC)
Measurement equipment	Oscilloscope
Adjustment element	RV218, RV212 [RV217]
Specified value	Minimum shaking width of fu pulse

[Connection]

Connect TP001 (EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

 Adjust with RV218 and RV212 Alternately to minimize the shaking of the fH pulse.

[Adjust with RV217 to minimize the shaking width of fH pulse.]

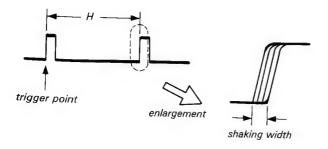


Fig. 8-12.

8-3. VIDEO SYSTEM ADJUSTMENT

The adjustment of the video system should in principle be followed the undermentioned adjustment procedure.

The colour video signal supplied from the pattern generator is utilized as the video input signal of the video system adjustment in recording mode. Make sure to check that the SYNC signal and colour burst signal are matched with those in the set-up of during the adjustment of as shown in Fig. 8-2.

[Adjustment procedure]

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) Crystal oscillator fo adjustment
- 4) Y/C separation adjustment
- 5) Y comb type filter adjustment
- 6) SYNC AGC adjustment
- 7) VIDEO OUT level adjustment
- 8) PB Y level adjustment
- 9) Y FM carrier frequency adjustment
- 10) Y FM deviation adjustment
- 11) AC clipping adjustment
- 12) 375fH VCO adjustment
- 13) Chroma emphasis fo adjustment
- 14) Carrier balance adjustment
- 15) GCA adjustment
- 16) fH VCO adjustment
- 17) REC Y level adjustment
- 18) REC C level adjustment
- 19) REC AFM level check
- 20) REC ATF level check

8-3-1. Playback Frequency Characteristic Adjustment (RP-36 Board)

(1) LP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

Mode	Playback
Signal	Alignment tape: For frequency characteristic adjustment (WR5-2C)
Measurement point	Pin (5) [Pin (6)] of CN008 •External trigger: Pin (2) of CN008 •Trigger slope: + [-]
Measurement equipment	Oscilloscope
Adjustment element	RV101 [RV102]
Specified value	3.58MHz level: 5.5MHz level = 10:7

[Adjustment method]

1) Adjust with RV101 [RV102] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.

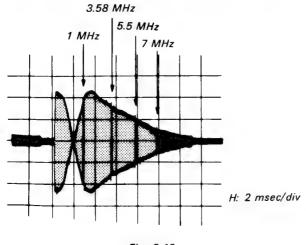


Fig. 8-13.

(2) SP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

Mode	Playback
Signal	Alignment tape: For frequency characteristic adjustment use (WR5-2C)
Measurement point	Pin ③ [Pin ④] of CN008 •External trigger: Pin ② of CN008 •Trigger slope: - [+]
Measu rement equipment	Oscilloscope.
Adjustment element	RV201 [RV202]
Specified value	3.58MHz level: 5.5MHz level = 10:7

[Connection]

Connect TP206 (F TAPE) on the SP-2 board and GND with a jumper wire.

[Adjustment method]

1) Adjust with RV201 [RV202] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.

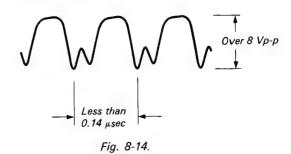
8-3-2. Flying Erase Check (RP-36 Board)

Mode	REC
Signal	Arbitrary
Measurement point	Pin ® of CN001 (FE(X))
Measurement equipment	Oscilloscope and frequency counter
Specified value	Frequency: Over 7 MHz Voltage: Over 8 Vp-p

Note: Be sure to use MP type tape (Pin ② of CN002 should be "L").

[Confirmation method]

1) Make sure that the oscillation frequency is over 7 MHz and the oscillation voltage is over 8 Vp-p.



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8-3-3. Crystal Oscillator fo Adjustment (CH-44/VI-20 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	Pin 2 of CH-44 board
Measurement equipment	Frequency counter
Adjustment element	CV001 on CH-44 board
Specified value	4433619 ± 50Hz

Note: Connect the frequency counter through a buffer of high impedance (approximately 10 M Ω) and low capacitance (less than 10pF)

[Adjustment method]

1) Adjust with CV001 on the CH-44 board so that it becomes 4433619 ± 50 Hz.

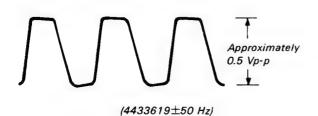


Fig. 8-15.

8-3-4. Chrome Comb Filter Adjustment (VI-20 Board)

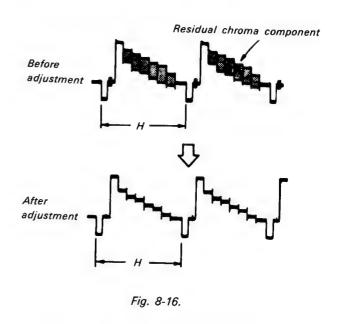
Mode	E-E
Signal	Colour bar
Measurement point	Pin ② of IC002
Measuring equipment	Oscilloscope.
Adjustment element	RV011, LV201
Specified value	Minimum residual chroma component

[Connection]

Connect Q202 base to GND with a jumper wire.

[Adjustment method]

1) Adjust with RV011 and LV201 alternately so that the residual chroma component becomes minimum.



8-3-5. Y Comb Type Filter Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 3 of IC002
Measurement equipment	Oscilloscope
Adjustment element	RV012
Specified value	Minimum Y-YD signal level

Note: Be sure to connect a $22k\Omega$ of resistor in series between Pin 3 of IC002 and 10:1 probe.

[Adjustment method]

- Adjust with RV012 so that the Y-YD signal level at the sync portion is minimum.
- 2) While playing back a tape in which dropouts are recorded, be sure to confirm that these dropouts are not discernible. In the event the dropouts become discernible, adjust with RV012 so that they become undiscernible.

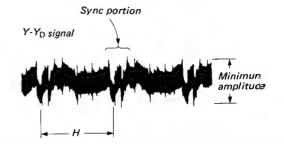


Fig. 8-17.

8-3-6. SYNC AGC Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin ③ of IC001
Measurement equipment	Oscilloscope
Adjustment element	RV009
Specified value	$0.50 \pm 0.02 \text{Vp-p}$

[Adjustment method]

1) Adjust with RV009 so that it becomes 0.50 ± 0.02 Vp-p.

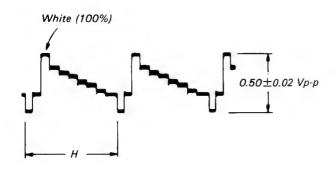


Fig. 8-18.

8-3-7. VIDEO OUT Level Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 5 of CN007
Measurement equipment	Oscilloscope.
Adjustment element	RV010
Specified value	1.00 ± 0.05 Vp-p

[Adjustment method]

1) Adjust with RV010 so that it becomes 1.00 ± 0.05 Vp-p.

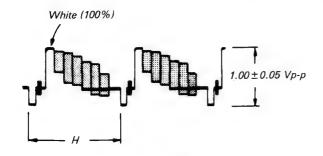


Fig. 8-19.

8-3-8. PB Y Level Adjustment (VI-20 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3 CSP) Colour bar section
Measurement point	Pin ⑤ of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV005
Specified value	1.00 ± 0.05 Vp-p

Note: 1. Set the SHARPNESS control (FT-13 board RV001) to the center click position.

2. Be sure that the EDIT switch (S014 on FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

1) Adjust with RV005 so that it becomes 1.00 ± 0.05 Vp-p.

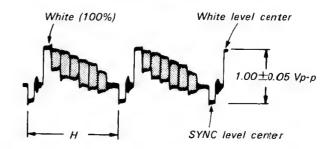


Fig. 8-20.

8-3-9. Y FM Carrier Frequency Adjustment (VI-20 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Pin (5) of CN003 (REC Y)
Measurement equipment	Frequency counter
Adjustment element	RV008
Specified value	4.20±0.05 MHz

Note: Set up the SP mode.

[Adjustment method]

- 1) Set RV007 (EMPH) to the mechanical center. (The slide pin of RV007 is approximately 2.7Vdc.)
- 2) Adjust with RV008 so that it becomes 4.20 ±0.05MHz.
- 3) Be sure to perform the "Deviation adjustment" and "AC CLIP adjustment".

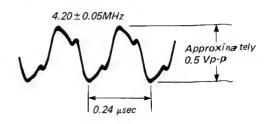


Fig. 8-21.

8-3-10. Y FM Deviation Adjustment (VI-20 Board)

Mode	Recording and playback
Signal	Colour bar
Measurement point	Pin 5 of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV006
Specified value	Playback level: 1.00 ± 0.05 Vp-p

- Note: 1. Be sure that the "VIDEO OUT level adjustment".

 "PB Y level adjustment" and "Y FM carrier frequency adjustment" have been completed.
 - 2. Set the SHARPNESS Control (FT-13 board RV001) to the center click position.
 - 3. Be sure the EDIT switch (S014 on the FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

- 1) Record the colour bar signal.
- 2) Playback the recorded section.
- 3) Be sure to check the playback output level. Specified value: 1.00 ± 0.05 Vp-p
- 4) When the specified value is not satisfied, repeat 1) to 3) after turning RV006 in the following manner.

	Turning direction of RV006 Seen from component side
When larger than the specified value	Clockwise ()
When smaller than the specified value	Counterclockwise ()

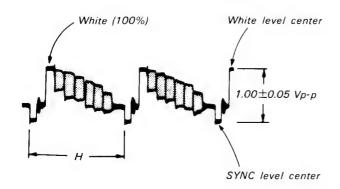


Fig. 8-22.

8-3-11. Emphasis Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin ® of IC001
Measurement equipment	Oscilloscope
Adjustment element	RV007
Specified value	230 ± 10%

[Adjustment method]

 Adjust with RV007 so that the peak of the white 100% becomes 230 ± 10%.

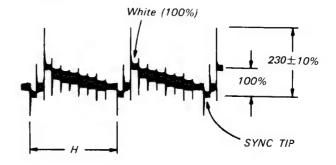


Fig. 8-23.

8-3-12. 375fH VCO Adjustment (CH-44/VI-20 Board)

Mode	Recording
Signal	Colour bar
Measurement point	Pin 26 of IC001 on CH-44 board
Measurement equipment	Digital voltmeter
Adjustment element	RV001 on CH-44 board
Specified value	$3.00 \pm 0.05 \text{Vdc}$

[Adjustment method]

1) Adjust with RV001 on the CH-44 board so that it becomes 3.0 ± 0.05 Vdc.

8-3-13. Chroma Emphasis fo Adjustment (CH-44/VI-20 Boards)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 36 of CH-44 board
Measurement equipment	Oscilloscope
Adjustment element	T001 on CH-44 board
Specified value	Be sure to confirm that the forcomponent is minimum and zero cross appears between green and magenta.

[Connection]

Connect the following two locations of CH-44 board using $4.7k\Omega$ resistors.

Pin ② (ACC) — Pin ③ (GND)

Pin (3) (ACC) — Pin (3) (5V)

[Adjustment method]

 Adjust with T001 on the CH-44 board so that the amplitude of the flat cyan section of the chroma signal becomes minimum.

At this point, be sure to confirm that the zero cross appears between the green and magenta.

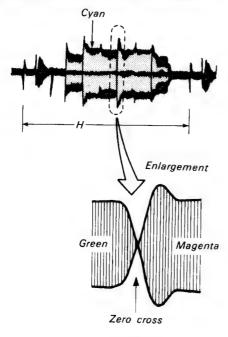


Fig. 8-24.

8-3-14. Carrier Balance Adjustment (CH-44/VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 28 of CH-44 board
Measurement equipment	Oscilloscope
Adjustment element	RV002 on CH-44 board
Specified value	Minimize 5.17 MHz signal component

[Adjustment method]

 Adjust with RV002 on the CH-44 board so that the 5.17 MHz signal component becomes minimum.

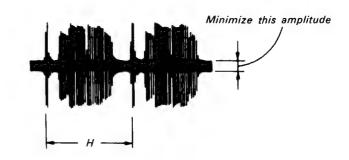


Fig. 8-25.

8-3-15. GCA Adjustment (VI-20 Board)

Playback
Arbitrary tape
Pin ② of IC005
Oscilloscope
RV014
500 ± 25 mVp-p

[Adjustment method]

- 1) Adjust with RV014 so that it becomes 500 ± 25 mVp-p.
- 2) Set to either the STILL, CUE or REVIEW mode, and be sure to confirm that the thickness of the colour does not differ from that of the playback mode. If necessary, adjust with RV014. (Be sure to play back a tape of LP mode.)

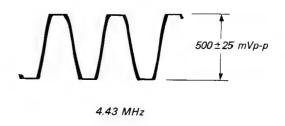


Fig. 8-26.

8-3-16. fH VCO Adjustment (VI-20 Boards)

Mode	E-E
Signal	Colour bar
Measurement point	CH1: Pin (3) of IC005 CH2: Pin (5) of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV013
Specified value	$14.5 \pm 0.2 \; \mu \text{sec}$

[Adjustment method]

- 1) Adjust RV013 so that the Tr of CH1 is $14.5 \pm 0.2 \mu sec.$
- 2) Confirm that the H (time) of CH1 and CH2 is stable.

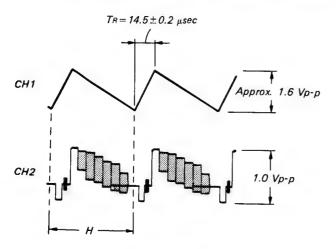


Fig. 8-27.

8-3-17. REC Y Level Adjustment (VI-20 Boards)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin (5) of CN003 (Note 2.)
Measurement equipment	Oscilloscope
Adjustment element	RV005
Specified value	0.46±0.02 Vp-p

Note 1: Be sure to always perform the adjustment of the REC C level after the REC Y level adjustment has been completed.

Note 2: Use the low-pass filter shown in Fig. 8-28.

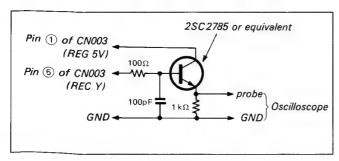
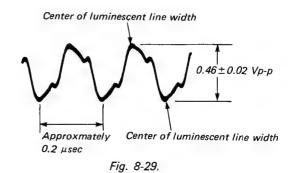


Fig. 8-28.

[Adjustment method]

1) Adjust with RV005 so that it becomes 0.46 ± 0.02 Vp-p.



8-3-18. REC C Level Adjustment (VI-20 Board)

Mode	REC
Signal	Colour bar
Measurement point	Pin ⑤ of CN003 (Note 1.)
Measurement equipment	Oscilloscope
Adjustment element	RV001
Specified value	58 ± 3 mVp-p

Note 1: Use the low-pass filter shown in Fig. 8-28.

Note 2: Be sure to use the MP type tape. (Be sure Pin 4) of W001 TAPE 2/TAPE 1 is at "L".)

[Connection]

Connect the following three points on VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 1 PIN (REC AFM) and GND.
- 3) W005 (5) PIN (REC ATF) and GND.

[Adjustment method]

1) Adjust with RV001 so that it becomes 60 mV_D-p.

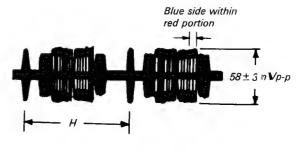


Fig. 8-30.

8-3-19. REC AFM Level Check (VI-20 Boards)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin ⑤ of CN003 (Note 1.)
Measurement equipment	Oscilloscope
Specified value	20.5 ± 4.0 mVp-p

Note: 1. Use the low-pass filter shown in Fig. 8-28.

- 2. Be sure to use the MP type tape.
 (Be sure Pin 4) of W001 TAPE 2/TAPE 1 is at "L".
- 3. When the signal level is too small to read, use a 1:1 probe.

[Connection]

Connect the following three points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W005 (5) PIN (REC ATF) and GND.

[Confirmation method]

1) Check that the REC AFM level is 20.5 ± 4.0 mVp-p.

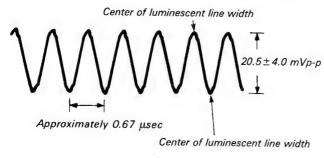


Fig. 8-31.

8-3-20. REC ATF Level Check (VI-20 Board)

Mode	REC (SP mode)	
Signal	Non-signal	
Measurement point	Pin 5 of CN003	(Note 1.)
Measurement equipment	Oscilloscope	
Specified value	$13.5 \pm 3.0 \text{ mVp-p}$	

Note: 1. Use the low-pass filter shown in Fig. 8-28.

- 2. Be sure to use the MP type tape.
 (Be sure Pin 4) of W001 TAPE 2/TAPE 1 is at "L".)
- 3. When the signal level is too small too read, use a 1:1 probe.

[Connection]

Connect the following two points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 1 PIN (REC AFM) and GND.

[Confirmation method]

1) Check that the REC ATF level is 13.5 ± 3.0 mVp-p.

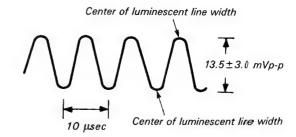


Fig. 8-32.

8-4. AUDIO SYSTEM ADJUSTMENT

Use a colour bar signal as video signal input when performing adjustment.

Connection of Audio Adjustment Measuring Instruments Connect the following audio measuring equipment in addition to the video measuring instruments.

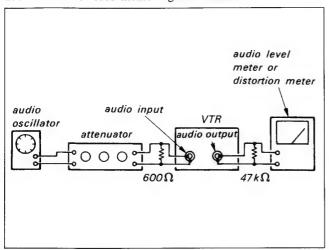


Fig. 8-33.

8-4-1. PCM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controls as shown below when making the adjustment.

INPUT SELECT switch	LINE
AUDIO MONITOR (PCM/MIX/STD)	
switch	PCM
REC LEVEL controls	[5]
PCM MODE switch	NORMAL

Note: The adjustment element of R ch is shown in parentheses [].

[Adjustment Order]

- 1) PCM Master Clock Oscillation Frequency Adjustment
- 2) REC PCM Level Check
- 3) MULTI PILOT Frequency Check
- PCM Playback VCO Free Oscillation Frequency Adjustment
- 5) MULTI PILOT Detector Adjustment
- 6) PCM Playback Level Adjustment
- 7) E-E Output Level Check
- 8) PCM Offset Adjustment
- 9) PCM Recording Level Adjustment
- 10) Overall Frequency Characteristics
- 11) Overall Distortion Ratio Check
- 12) Overall S/N Check

1. PCM Master Clock Adjustment (SP-2 Board)

Mode	Record
Signal	None
Measurement point	Pin ③ of CN601
Measurement equipment	Frequency counter
Adjustment element	RV602
Specified value	11.45 ± 0.01 MHz

[Adjustment method]

- 1) Connect TP604 (IC605 (4) PIN) to Pin (1) (REG 5V) of CN601 with a jumper wire.
- 2) Adjust to 11.45 ± 0.01 MHz with RV602.
- 3) Remove the jumper wire.
- 4) Connect TP604 to GND with a jumper wire.
- 5) Check that the frequency is more than 11.63MHz.

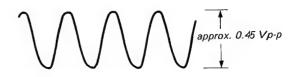


Fig. 8-34.

2. REC PCM Level Check (SP-2 board)

Mode	Record
Signal	None
Measurement point	Pin ① of CN607
Measurement equipment	Oscilloscope
Specified value	approx. 0.5 Vp-p

[Confirmation method]

1) Check that the REC PCM level is approximately 0.5 Vp-p.

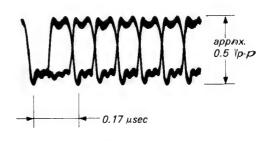


Fig. 8-35.

3. MULTI PILOT Frequency Check (SP-2 board)

Mode	E-E
Signal	Arbitrary
Measurement point	Pin 39 of IC204
Measurement equipment	Frequency counter
Specified value	225.360 ± 0.200 kHz

[Confirmation method]

1) Check that the frequency is 225.360 ± 0.200 kHz.



Fig. 8-36.

4. PCM Playback VCO Free Oscillation Frequency Adjustment (SP-2 Board)

Mode	PLAYBACK, FF INDEX SEARCH and REW INDEX SEARCH
Signal	Arbitrary tape
Measurement point	TP603
Measurement equipment	Frequency counter
Adjustment element	RV601 (PLAYBACK) RV604 (FF INDEX SEARCH) RV603 (REW INDEX SEARCH)
Specified value	11.50±0.05 MHz (PLAYBACK) 10.29±0.05 MHz (FF INDEX SEARCH) 12.71±0.05 MHz (REW INDEX SEARCH)

[Connection]

- 1) Connect TP600 (IC600 ① PIN) to Pin ① (REG 5V) of CN005 with a jumper wire.
- 2) Disconnect the CN607 from the SP-2 board.

[Adjustment method]

- 1) Set up the PLAYBACK mode.
- 2) Adjust to 11.50 ± 0.05 MHz with RV601.
- 3) Set up the FF INDEX SEARCH mode.
- 4) Adjust to 10.29 ± 0.05 MHz with RV604.
- 5) Set up the REW INDEX SEARCH mode.
- 6) Adjust to 12.71 ± 0.05 MHz with RV603.



Fig. 8-37.

5. MULTI PILOT Detector Adjustment (MK-2/AU-22 board)

Mode	E-E
Signal	None
Measurement point	1. Pin ⑤ of IC801 on MK-2 board 2. Pin ⑤ of IC821 on MK-2 board
Measurement equipment	Frequency counter
Adjustment element	1. RV801 (SP 1 CH) on MK-2 board 2. RV821 (LP 2 CH) on MK-2 board
Specified value	225.361 ± 1 kHz

Note: Connect the frequency counter through a buffer of high impedance (approximately $10M\Omega$) and low capacitance (less than 10pF)

The adjustment element of LP 2 CH is shown in parentheses [].

[Adjustment method]

- Connect the frequency counter to Pin (5) of IC801 IIC8511.
- 2) Adjust to $225.361 \pm 1 \text{kHz}$ with RV801 [RV821].

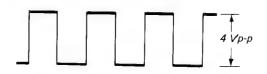


Fig. 8-38.

6. PCM Playback Level Adjustment (AD-12/AU-22 Board)

Mode	Playback
Signal	Alignment tape: For Operation confirmation (WR5-3CSP) 400Hz section
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Adjustment element	RV705 on AD-12 board
Specified value	$-10.0 \pm 0.1 dBs$

[Adjustment method]

1) Adjust to -10.0 ± 0.1 dBs with RV705.

Note: If there is a level difference between Lch and Rch, adjust to the center level.

7. E-E Output Level Check

Mode	E-E
Signal	400Hz, -10dBs: AUDIO IN L [R]
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	-10±2dBs

[Confirmation method]

- 1) Set the REC LEVEL control to 5 position.
- 2) Check that the REC LEVEL meter indicate -10dB.
- 3) Check that the AUDIO OUT L [R] level is $-10 \pm 2 dBs$.

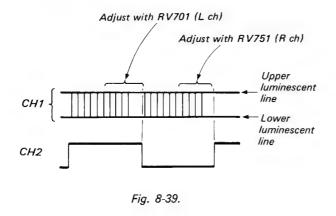
8. PCM Offset Adjustment (AD-12/AU-22 Board)

Mode	REC
Signal	None
Measurement point	CH1: Pin (9) (ADDA) of AD-12 board CH2: Pin (11) (WCK) of AD-12 board
Measurement equipment	Oscilloscope
Adjustment element	RV701 [RV751] on AD-12 board
Specified value	Equal brightness of the upper luminescent line and the lower

Note: Be sure to perform the adjustment alternatly, since Lch and Rch affect each others.

[Adjustment method]

- 1) Set the REC LEVEL controls to the minimum position.
- Adjust with RV701 [RV705] so that the brightness of the uppwer luminescent line is equal to that of the lower luminescent line.



PCM Recording Level Adjustment (AD-12/AU-22 board)

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN (Both L and R)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Adjustment element	RV703 [RV753] on AD-12 board
Specified value	-10 ± 0.5 dBs

Note: Be sure that the "PCM playback level adjustment" have been completed.

[Adjustment method]

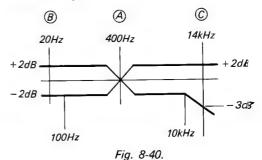
- 1) Set up E-E mode.
- 2) Adjust with the REC LEVEL control so that the AUDIO OUT level is -10dBs. (Both L CH and R CH).
- 3) Record the signal.
- 4) Playback the recorded portion.
- 5) Check that the AUDIO OUT L [R] level is $-10 \pm 0.5 dBs$.
- 6) If the specified value is not satisfied, repeat 1 to 5 after turning RV703 [RV753] on AD-12 board.

10. Overall Frequency Characteristic Check

Mode	Self-recording and playback
Signal	 A 400Hz, −10dBs B 20Hz, −10dBs C 14kHz, −10dBs AUDIO IN L [R]
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	When the playback output level of 400Hz is specified as 0dB. that of 20Hz should be 0 ± 2 dB, and that of 14 kHz should be 0^{\pm}_{3} dB.

[Confirmation method]

- Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signals (A) to (C) in sequence.
- 3) Playback the recorded section.
- 4) When the playback output level of 400Hz is specified as 0dB, that of 20Hz should be $0\pm 2dB$, that of 14kHz should be $0^{+2}_{3}dB$.



11. Overall Distortion Ratio Check

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN L [R]
Measurement point	LINE OUT L [R]
Measurement equipment	Distortion meter
Specified value	Less than 0.35%

[Confirmation method]

- 1) Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signal.
- 3) Playback the recorded section.
- 4) The distortion ratio should be less than 0.35%.

12. Overall Noise Level Check

Mode	Self-recording and playback
Signal	Non-signal (Install shorting plugs to AUDIO IN both of L and R.)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	Less than -89dBs*1

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) The noise level should be less than $-89 dBs^{*1}$
- *1 :The measured value when using IHF-A hearing sensitivity compensation filter.

8-4-2. AFM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controles as shown below when making the adjustment.

INPUT SELECT switchLINE AUDIO MONITOR (PCM/MIX/STD) switchSTD

[Adjustment Order]

- 1) AFM carrier frequency adjustment.
- 2) AFM deviation adjustment.
- 3) E-E output level check
- 4) Overall level characteristics check
- 5) Overall frequency characteristics check
- 6) Overall distortion check
- 7) Overall noise level check

1. AFM Carrier Frequency Adjustment (AF-20/AU-22 Board)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin ③ (REC AFM) of AF-20 board
Measurement equipment	Frequency counter and oscilloscope
Adjustment element	RV503 on AF-20 board
Specified value	1.500 ± 0.003 MHz

[Adjustment method]

- 1) Adjust with RV503 so that it becomes 1.500 ±0.003MHz.
- 2) Check that the REC AFM level is approx. 90 mVp-p.

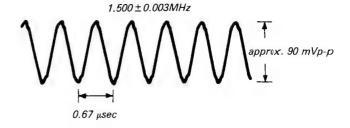


Fig. 8-41.

2. AFM Deviation Adjustment (AF-20/AU-22 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Adjustment element	RV501 on AF-20 board
Specified value	-10 ± 0.2 dBs

[Adjustment method]

1) Adjust with RV501 so that the AUDIO OUT level becomes -10 ± 0.2 dBs.

3. E-E Output Level Check

The Checking element of Rch is shown in parentheses [].

Mode	E-E
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	-10±2dBs

[Confirmation method]

1) Be sure the AUDIO OUT L [R] level is $-10 \pm 2 dBs$.

4. Overall Level Characteristics Check

Mode	Self-recording and playback (SP)
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	-10±3dBs.

[Confirmation method]

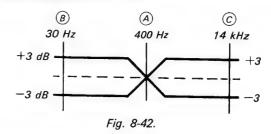
- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the AUDIO OUT level is -10 ± 3 dBs.

5. Overall Frequency Characteristics Check

Mode	Self-recording and playback (SP)
Signal	 A 400Hz, -20dBs B 30Hz, -20dBs C 14kHz, -20dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	When the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both 0±3dB.

[Confirmation method]

- 1) Record the signals of (A) to (C) in sequence.
- 2) Playback the recorded section.
- 3) Be sure that when the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both $0\pm3dB$.



6. Overall Distortion Check

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Distortion meter
Specified value	Less than 0.5%*1

[Confirmation method]

- 1) Record the signal
- 2) Playback the recorded section.
- 3) Be sure the distortion is less than $0.5\%^{*1}$.
- *1: The value when a distortion measuring filter (Fig. 8-43.) is used and that when the filter is not used is less than 1.0%.

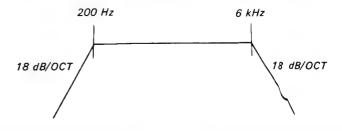


Fig. 8-43

7. Overall Noise Level Check

Mode	Self-recording and playback (SP)
Signal	Non-signal (Install shorting plugs to AUDIO IN both of L and R.)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	Less than -62dBs*2

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the noise level is less than $-62dBs^{*2}$.
- *2: The value when an IHF-A listening sensitivity correction filter is used.

8-5. TUNER SYSTEM ADJUSTMENT

8-5-1. fH Adjustment (TU-83 board) (AEP model only)

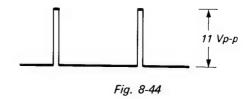
Mode	E-E
Signal	None
Measurement point	Pin 6 of IC003
Measurement equipment	Frequency counter
Adjustment element	RV001
Specified value	15.625 ± 0.01kHz

[Connection]

Connect Pin 12 of IC003 to GND with a jumper wire.

[Adjustment method]

Adjust to 15.625 ± 0.01 kHz with RV001.



8-5-2. Stereo Separation Adjustment (TS-50 Board)

Mode	E-E
Signal	Stereo broadcasting signal by a RF signal generator L CHNone R CH400Hz 30% MOD •INPUTAERIAL IN
Measurement point	AUDIO OUT (L) terminal
Measurement equipment	Audio level meter
Adjustment element	RV101
Specified value	Minimum output level

[Adjustment method]

Minimize the 400Hz output level with RV101.

8-6. TIMER SYSTEM ADJUSTMENT (FT-13 Board)

Measurement point	Pin 60 of IC002
Measurement equipment	Frequency counter
Adjustment element	CV001
Specified value	1048.58 ± 0.01kHz

[Connection]

- 1) Connect Pin 56 of IC002 and GND with a jumper wire.
- 2) Connect Pin 59 of IC002 and GND with a jumper wire.

[Adjustment method]

Adjust to 1048.58 ± 0.01 kHz with CV001.

8-7. SECAM-PAL CONVERSION SYSTEM ADJUSTMENT (West Germany model only)

- Make this adjustment aligning the PAL video system.
- For this adjustment, use the equipment listed below.

[Equipment Required]

- (1) PAL Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth...more than 10MHz with delay mode
- (3) SECAM colour-bar generator
- (4) PAL vector scope
- (5) Frequency counter
- (6) Digital voltmeter

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope to CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and line ID signals are flat at approximately 0.3, 0.7, and 0.3V, respectively. Fig. 8-45. shows video signals (colour bars) used in making the electrical adjustment.

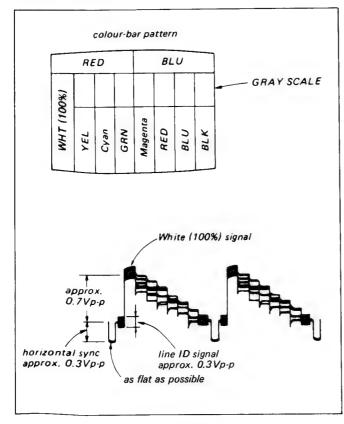


Fig. 8-45

8-7-1. fh VCO ADJUSTMENT (TC-3 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Pin ③ of IC002
Measurement equipment	Frequency counter
Adjustment element	RV001
Specified value	15.630 ± 0.01kHz

[Connection]

Connect between pin 1 of IC002 and GND with a capacitor of 0.1 μ F.

[Adjustment method]

1) Adjust with RV001 so that it becomes 15.630 ± 0.01 kHz.



8-7-2. V Blanking Pulse Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	CH1: Pin ① of CN002 CH2: Pin ⑨ of IC003
Measurement equipment	Oscilloscope
Adjustment element	RV002, RV003
Specified value	Leading edge adjustment (RV002) $-6\pm1H$ Trailing edge adjustment (RV003) $+23\pm0.5H$

[Adjustment method]

- 1) Adjust with RV003 so that the trailing edge of the V blanking pulse comes to the position of $+23\pm0.5H$ ($+1472\pm32\mu\text{sec}$) from the front edge of the vertical SYNC signal.
- 2) Adjust with RV002 so that the leading edge of the V blanking pulse comes to the position of $-6\pm1H$ (-384±64 μ sec) from the front edge of the vertical SYNC signal.

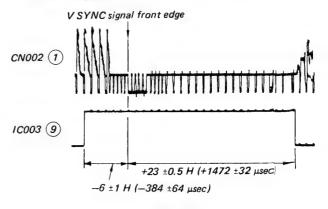


Fig. 8-47

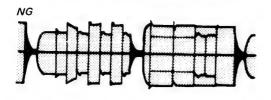
8-7-3. Bell Filter Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	TP001 (Connecting point of R053 and R054)
Measurement equipment	Oscilloscope
Adjustment element	LV002
Specified value	The level variation of the chroma signal amplitude is $0 \pm 10\%$.

Note: When performing (Adjustment method 1), be sure to use 1:1 probe as the signal level of TP001 is extremely small. In addition, when the adjustment is impossible because of the signal level is too small to read, perform (Adjustment method 2).

[Adjustment method 1]

1) Adjust LV002 until the waveform is flat.





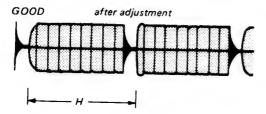


Fig. 8-48.

[Adjustment method 2]

- 1) Set the picture level of the monitor TV to maximum.
- 2) Adjust by turning LV002 so that the boarders of the respective colour-bars (especially red and blue) become vivid and stop LV002 at the position where the beat (red and magenta sections) becomes small.

8-7-4. FSC Adjustment (TC-3/VI-20 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ③ W005 on VI-20 board
Measurement equipment	Frequency counter
Adjustment element	CV001 on TC-3 board
Specified value	4433618.75 ± 10Hz

Note: Connect the frequency counter through a buffer with high impedance (approx. $10M\Omega$) and low capacity (less than 10 pF.)

[Adjustment method]

1) Adjust to 4433618.75 ± 10 Hz with CV001 on TC-3 board.

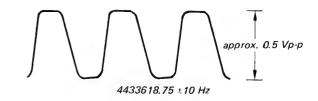


Fig. 8-49.

8-7-5. Demodulator Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ① of CN002
Measurement equipment	Oscilloscope
Adjustment element	LV001, RV005
Specified value	Minimum carrier leak (less than 20 mVp-p)

[Adjustment method]

 Adjust LV001 and RV005 alternately to minimize carrier leak.

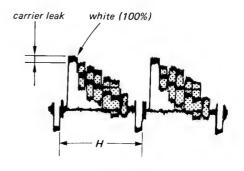


Fig. 8-50.

8-7-6. Delay Line Adjustment (TC-3, Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	VIDEO OUT terminal
Measurement equipment	PAL vector scope (75Ω) terminated)
Adjustment element	LV003, RV007
Specified value	 Be sure that RED and CYAN are within the (田). Be sure that other colours than the above are within (口).

[Adjustment method]

1) Adjust with LV003 and RV007 alternately so that the colour luminescent spots come into the specified frame.

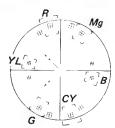


Fig. 8-51

8-7-7. Y/C Mix Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ① of CN002
Measurement equipment	Oscilloscope
Adjustment element	RV004
Specified value	When the SYNC level is specified as 100%, the burst level becomes 100±5%.

[Adjustment method]

1) Adjust with RV004 so that burst level becomes equivalent to the SYNC level.

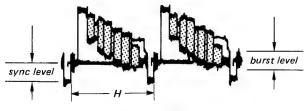


Fig. 8-52

8-7-8. PAL/SECAM Distinction Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	1. Pin (4) of IC001 2. Pin (4) of CN002
Measurement equipment	Digital voltmeter
Adjustment element	RV006
Specified value	12.0±0.5 V dc

[Connection]

Connect an adjustable resistor of 2.2 $k\Omega$ in parallel with LV002

[Adjustment method]

- 1) Set the adjustable resistor of 2.2 k Ω to its maximum resistance value.
- 2) Confirm the DC voltage of pin (4) of IC001 is approx.6.5 V dc.
- 3) Make the resistance value of the adjustable resistor of 2.2 k Ω gradually small and stop it at the position when the DC voltage of pin $^{(1)}$ of IC001 becomes approx. 5 V dc after suddenly dropped.
- 4) Set RV006 to the position that it is turned fully to counterclockwise (()).

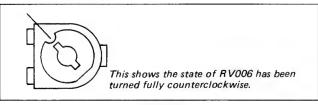
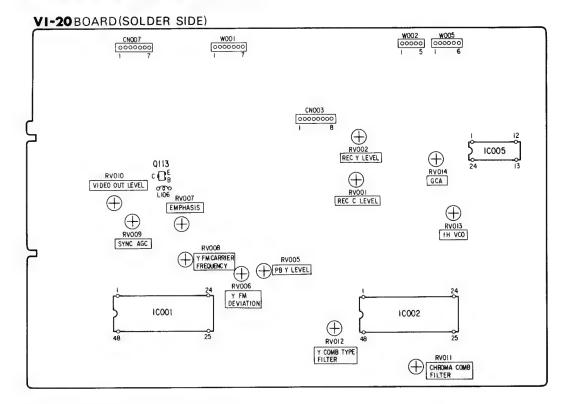
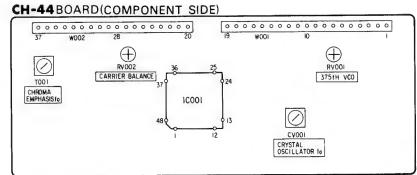


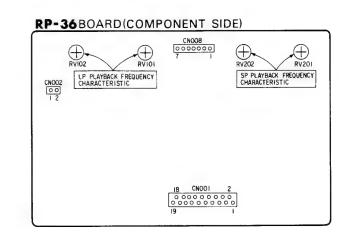
Fig. 8-53

- 5) Connect a digital voltmeter to pin 4 of CN002 and confirm that the DC voltage is 0 Vdc.
- 6) Turn RV006 gradually clockwise () and stop it at the position when the DC voltage at pin 4 of CN002 becomes 12±0.5 Vdc after suddenly increased.

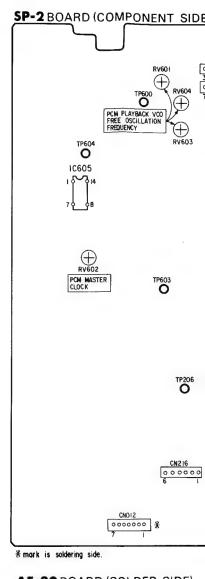
8-8. ADJUSTMENT ELEMENT LOCATION











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TS-50BOARD(SOLDER SIDE)

8-8. ADJUSTMENT ELEMENT LOCATION

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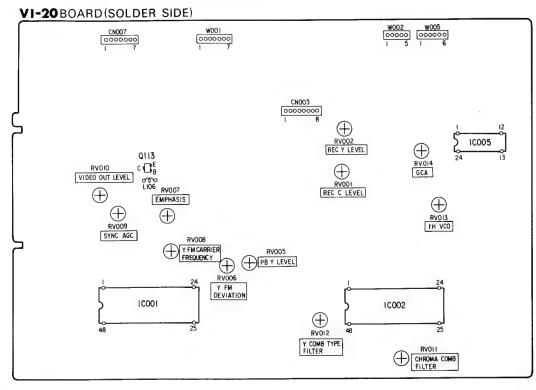
ox. 5 V

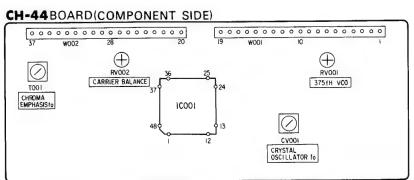
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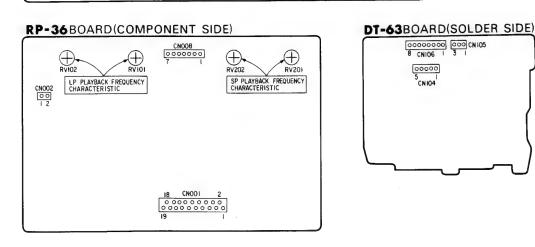
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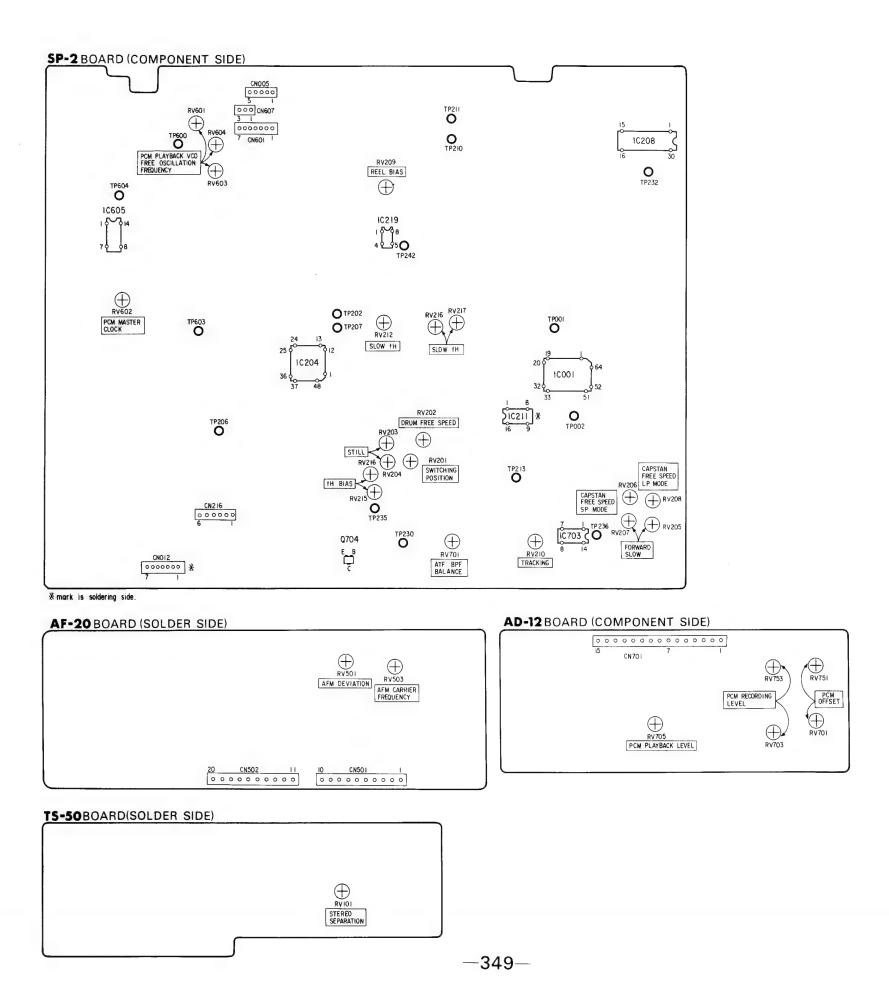
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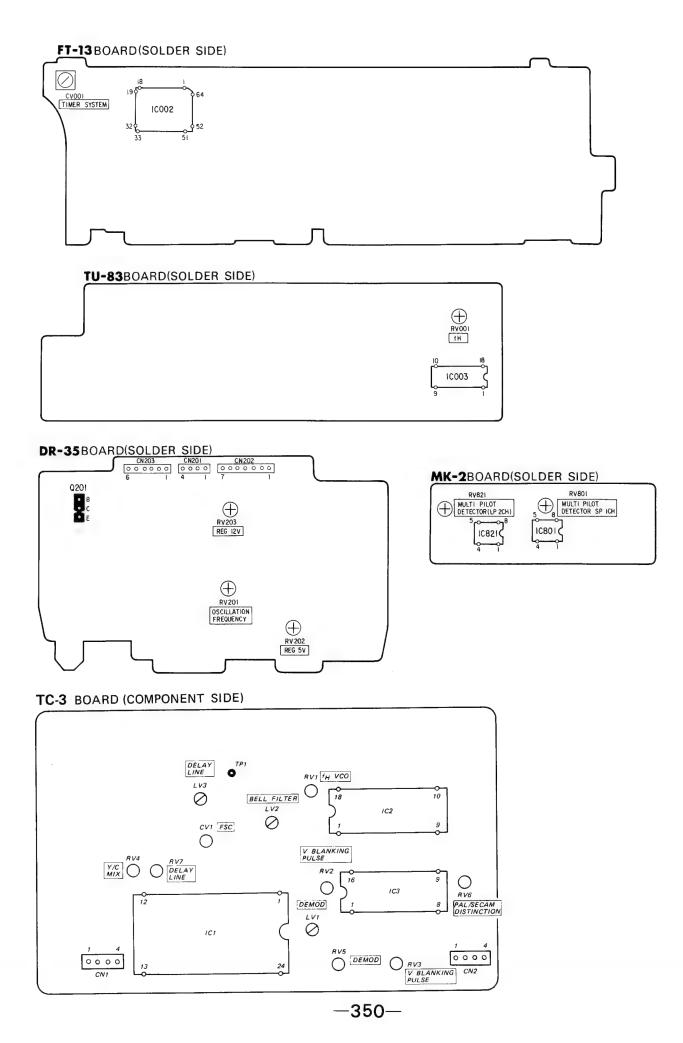
CN002











SERVICE MANUAL



SPECIFICATIONS

Remote control system Infrared control

Power requirements Dimensions 4.5 V dc, 3 R6 (size AA) batteries Approx. $105 \times 40 \times 160$ mm (w/h/d)

 $(41/10 \times 11/2 \times 61/4 \text{ in.})$

incl. projecting parts and controls

Weight

Approx. 220 g (8oz) without batteries



1. LOCATION AND FUNCTION OF CONTROLS

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B-1

FUNCTION OF CONTROLS

- 1 Transmitter
- 2 Command mode selector (Page 356)
 Select the command mode of the equipment you want to operate with the Commander.

To operate this VTR, set to the same position as that of the COMMAND MODE selector inside the upper compartment of the VTR.

3 OPEN/CLOSE button

4 Number buttons

Use for selecting programmes.

For 0 through 9, press corresponding single-digit numerals.

For 10 through 19, press "1-" for tens-digit and then ones-digit.

For 20 through 29, press "2-" and then ones-digit.

5 | **411** and **11** | FRAME buttons (Page 24)

In the still picture mode, press **II** to reverse the picture by one frame, and **II** to advance the picture by one frame (frame-by-frame picture).

If the button is kept depressed, the picture moves continuously.

These buttons are also used to select the direction of playback.

Press **II** to reverse picture, and **II** for forward picture.

6 Variable speed playback buttons (Page 24)

During playback, press one of these buttons to select the desired playback speed.

► (still picture), x1/10, x1/5, x1, x2, SEARCH(for picture search)

7 INDEX button

8 GO TO ZERO button

9 AUTO PB (playback) button

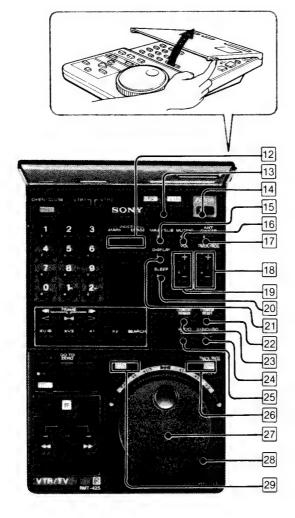
Press to play back a tape automatically from the beginning of the tape after rewinding.

10 REC (record) buttons

To start recording, press these buttons simultaneously.

11 Tape transport buttons

- II PAUSE
- ► PLAY
- **◄** REW
- ▶ FF
- **■** STOP



B-2

12 INDEX MARK and ERASE buttons

- Remote control TV/VTR selector (Page 356)

 Normally set to VTR for operating the recorder. To operate certain Sony TVs (having a R mark), set to TV.
- 14 ON switch

15 MAIN/SUB button

Each pressing selects the MAIN, SUB or MAIN/SUB language of the bilingual programme or the played back biligual tape.

- 16 MUTING button
- 17 ANT TV/VTR button
- 18 TRACK/PROG (programme) buttons
- 19 VOL (volume) buttons
- 20 SLEEP button

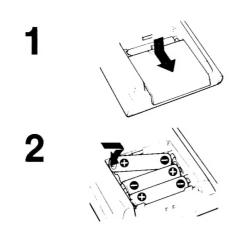
21 DISPLAY button

Press to retain or extinguish the on-screen display of certain Sony TVs (having a 📳 mark).

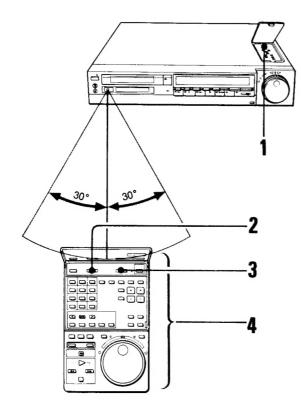
- 22 COUNTER RESET button
- 23 COUNTER/REMAIN button
- 24 SYNCHRO EDIT button
- 25 AUDIO DUB (dubbing) button
- Press when using the JOG dial for digital multi audio track selection, programme and index number selection.
- 27 JOG dial
- 28 SHUTTLE ring
- [29] JOG SHUTTLE function button and lamp (Page 23)
 Press this button when using the JOG dial and
 SHUTTLE ring for various speed playback.
- The buttons with the similar name or mark as the buttons on the VTR have the same function as tho
 ⇒ of the VTR.
- The buttons marked with an orange dot can be uself to operate certain Sony remote control TVs.

2. REMOTE COMMANDER SET-UP

B-3



B-4



B-3

Battery insertion

- 1 Open the lid.
- 2 Insert three R6(AA) batteries with correct polarity.
- 3 Slide and close the lid.

Battery life

In normal operation, batteries will last for about three months.

When the batteries are exhausted, the JOG dial and SHUTTLE ring on the Commander will not function, and then the indicator will not light when the buttons on the Commander are pressed.

If the Remote Commander is not to be used for a long period of time,

remove the batteries to avoid possible damage from battery leakage.

B-4

TO CONTROL THIS VTR

- 1 Set the COMMAND MODE selector in the upper compartment to VTR 1 or VTR 2.
- 2 Set the command mode selector on the Commander to the same position as that on the VTR.*
- 3 Set TV/VTR to VTR.
- 4 Press the required buttons.
- * Command mode should be selected correctly according to which equipment you use with this VTR simultaneously.

Notes on remote control operation

- There should be no obstacles between the Commander and the remote sensor.
- Operable range is limited.
 Distance: Approx. 7 meters from the remote sensor.
 Angle: Approx. ±30 degrees from the centre.
 The shorter the distance between the Commander and the equipment, the wider the angle within which the equipment can be controlled.

3. PRINTED WIRING BOARDS

Note:

 $\bullet \hspace{0.1cm} \circ\hspace{-0.1cm} - \hspace{0.1cm} :$ indicates a lead wire mounted on the component side.

• •- : indicates a lead wire mounted on the printed side,

⊗ : Through hole.

• Pattern from the side which enables seeing.

: Pattern of the rear side.

• B+ pattern from the side which enables seeing.

• : Carbon pattern.

When indicating parts by reference number, please include the board name.

Caution:

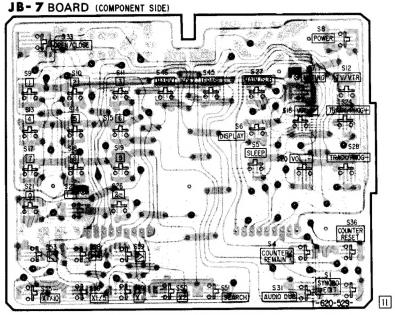
Pattern face side: Parts on the pattern face side seen from

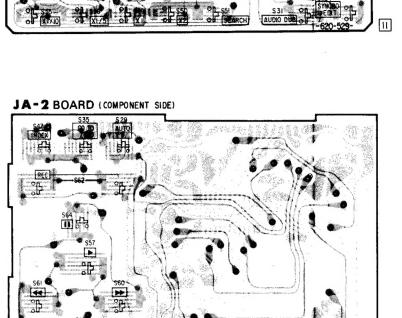
(Solder Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

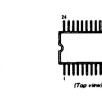
JA-2

JB-7







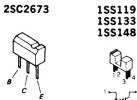


μPD7556G-506









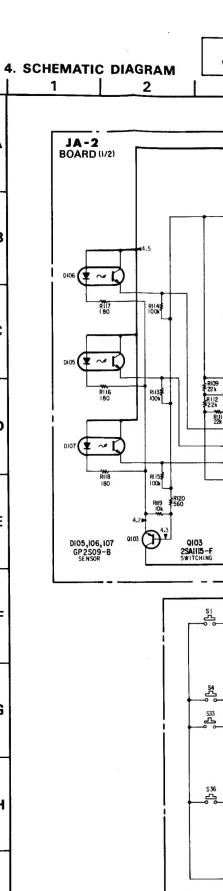
JA-2 BOARD (SOLDER SIDE)











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1SS133 1SS148

JB-7 BOARD (SOLDER SIDE)

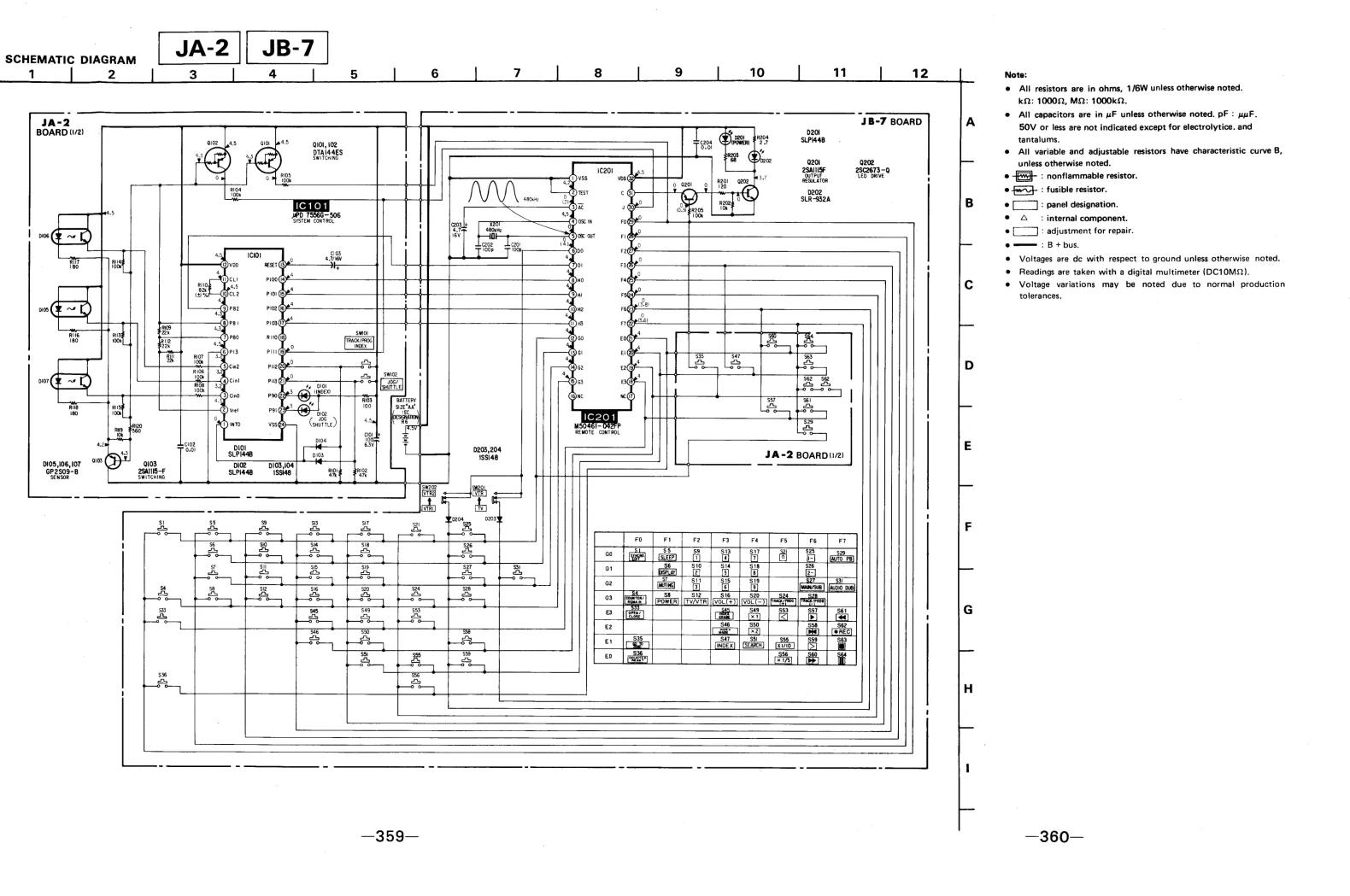
GP2509

BATTERY SIZE A A (IEC DESIGNATION R6) 4.5V

SLP144B

SLR932A

1-618-666-

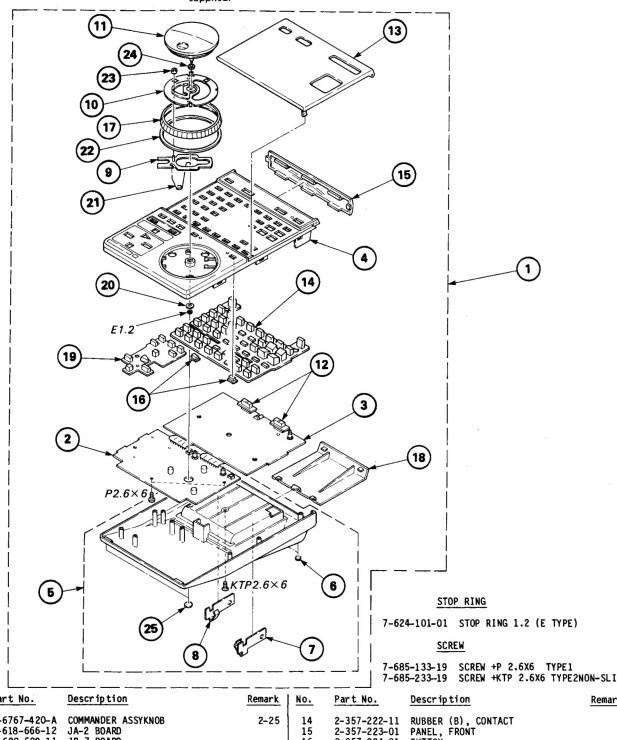


5. EXPLODED VIEW

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark A are critical for safety. Replace only with part number specified.



	L					5-233-19 SCREW +KTP 2.6)	
No.	Part No.	<u>Description</u>	Remark	No.	Part No.	Description	Remark
1	A-6767-420-A		2-25	14	2-357-222-11	RUBBER (B), CONTACT	
2	*1-618-666-12	JA-2 BOARD		15	2-357-223-01	PANEL, FRONT	
3	*1-620-529-11	JB-7 BOARD		16	2-357-224-01	BUTTON	
4	X-2357-252-1	CASE ASSY, UPPER		17	2-357-225-01	DIAL, SHUTTLE	
5	X-2357-215-1	CASE ASSY, LOWER	6-8, 25	18	2-357-227-01	COVER, BATTERY	
6	4-374-469-01	FOOT, RUBBER		19	2-357-292-01	RUBBER, CONTACT	
7	2-383-106-00	TERMINAL (D), BATTERY		20	3-320-412-01	WASHER (1.4), SPECIAL	
8	4-350-925-00	TERMINAL (C), BATTERY		21	3-691-634-01		
9	X-3691-605-1	PLATE ASSY, SLIDE		22	3-691-635-01	SPACER, SHUTTLE	
10	X-3691-615-1	PLATE ASSY, DIAL, SHUTTLE		23	3-691-648-01	ROLLER	
11	X-3691-672-1	DIAL (R) (N) ASSY, JOG		24	3-701-439-21	WASHER	
12	2-357-217-01	KNOB, SLIDE		25	2-270-305-00		
13	2-357-221-61	LID, UPPER					

6. ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SW101 1-553-856-00 SWITCH, KEY BOARD SW102 1-553-856-00 SWITCH, KEY BOARD

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- otherwise noted.

RESISTORS

All resistors are in ohms

• Items marked "*" are not stocked

• All variable and adjustable resistors have characteristic curve B, unless

COILS

MMH : mH, UH : μH

MF : μF, PF : μμF

CAPACITORS

since they are seldom required for

routine service. Some delay should be

anticipated when ordering these items.

			:	All resiste F : nonfla	ors are in ohn ammable	ns	•	• MMH : mH,	, UH : μF	4		
Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description				Remark
	*1-618-666-12	JA-2 BOARD					*1-620-529-11	JB-7 BOARD				
	CAP	ACITOR					2-357-218-01 2-357-219-01					
C101 C102	1-124-225-00 1-101-004-00	ELECT CERAMIC	100MF 0.01MF	20%	6.3V 50V			ACITOR	, DATTER	\ 1		
C103	1-124-245-00		4.7MF	20%	16V	C201	1-102-973-00		100PF		10%	50V
	<u>D10</u>	<u>DE</u>				C202 C203	1-124-245-00		100PF 4.7MF		10% 20%	50V 16V
D101 D102	8-719-901-44 8-719-901-44	DIODE SLP144 DIODE SLP144				C204	1-101-004-00	CERAMIC	0.01MF			50V
D103 D104	8-719-911-19 8-719-911-19	DIODE 1SS119	1				<u>D10</u>	DE				
D105	8-719-939-11	GP2S09-B				D201 D202	8-719-901-44 8-719-912-39	DIODE SLP144 DIODE SLR-93				
D106 D107	8-719-939-11 8-719-939-11	GP2S09-B GP2S09-B				D203 D204	8-719-911-19 8-719-911-19					
	<u>IC</u>					į	<u>1C</u>					
IC101	8-759-111-60	IC UPD7556G-	506			IC201	8-759-603-88	IC M50461-04	2FP			
	TRA	NSISTOR					TRA	NSISTOR				
Q101	8-729-900-65	TRANSISTOR D				0201		TRANSISTOR 2		GR		
Q102 Q103	8-729-900-65 8-729-611-53	TRANSISTOR D		F		Q202	8-729-967-32	TRANSISTOR 2	SC2673			
	RES	ISTOR					RES	SISTOR				
R101	1-249-437-11	CARBON	47K	5% 1/6	W	R201 R202	1-249-406-11 1-249-429-11		120 10K	5% 5%	1/6W 1/6W	
R102 R103	1-249-437-11	CARBON	47K 100	5% 1/6 5% 1/6	W	R203 R204	1-249-403-11 1-249-452-11	CARBON	68 2.7	5% 5%	1/6W 1/4W	
R104	1-249-405-11 1-249-441-11	CARBON	100K	5% 1/6	W	R205	1-249-441-11		100K	5%	1/6W	
R105	1-249-441-11	CARBON	100K	5% 1/6			SWI	TCH				
R106 R107	1-249-441-11 1-249-441-11		100K 100K	5% 1/6 5% 1/6		SW201	1-553-977-00	SWITCH, SLID)E			
R108	1-249-441-11	CARBON	100K	5% 1/6		SW202	1-553-977-00	SWITCH, SLID	E			
R109 R110	1-249-433-11 1-215-467-00	CARBON METAL	22K 82K	5% 1/6 1% 1/6			CRY	STAL				
R111	1-249-433-11		22K	5% 1/6		X201	1-527-476-00	OSCILLATOR,	CERAMIC	(480	KHz)	
R112	1-249-433-11 1-249-441-11		22K 100K	5% 1/6 5% 1/6		*****	k*******	*****	*****	****	*****	*****
R113 R114	1-249-441-11		100K	5% 1/6								
R115	1-249-441-11		100K	5% 1/6								
R116	1-247-813-00	CARBON	180	5% 1/6								
R117	1-247-813-00	CARBON	180 180	5% 1/6 5% 1/6								
R118 R119	1-247-813-00 1-249-429-11		180 10K	5% 1/6								
R120	1-249-414-11		560	5% 1/6								
	SWI	тсн	·									
		A				1						